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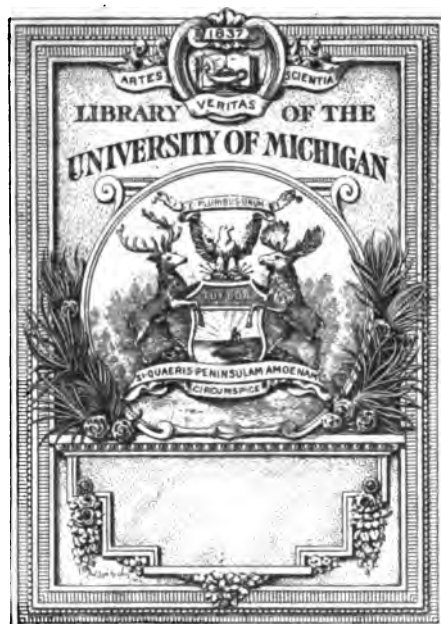
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THE ARCHIVES OF DIAGNOSIS

A QUARTERLY JOURNAL DEVOTED TO THE STUDY
AND THE PROGRESS OF DIAGNOSIS AND PROGNOSIS

FOUNDED AND EDITED BY
HEINRICH STERN
NEW YORK

VOLUME I
1908

PUBLISHED BY
THE ARCHIVES OF DIAGNOSIS
250 WEST 73D STREET
NEW YORK

1908

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THE ARCHIVES OF DIAGNOSIS

A QUARTERLY JOURNAL DEVOTED TO THE STUDY
AND THE PROGRESS OF DIAGNOSIS AND PROGNOSIS

Vol. I

JANUARY, 1908

No. 1

Special Articles.

THE DIAGNOSIS AND PROGNOSIS OF MITRAL STENOSIS AND OF AORTIC STENOSIS.

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It is unfortunate that among physicians generally, so little attention is paid to the differentiation of valvular lesions of the heart. It is not at all uncommon to hear the expression "there is mitral disease" or even "there is an endocardial murmur, but I don't pretend to differentiate those sounds." A man who does not attempt to differentiate the murmurs heard over the precordium has no right to be attempting to practice general medicine. The diagnosis of the different lesions is most important from the standpoint of both prognosis and treatment.

I wish briefly to call attention to the symptoms and signs from which the diagnosis of mitral stenosis may be made and then to point out the morbid conditions present upon which our prognosis in a given case will depend.

The *diagnosis of mitral stenosis* depends upon the history, the symptoms and the physical signs. In the first place it is probably always inflammatory in origin, so that there is usually a history of one or more attacks of infectious disease with which endocarditis is associated, especially rheumatism, scarlet fever, or chorea. It occurs very much more frequently in the female sex—no satisfactory reason for this has, so far as I know, ever been given.

While there is no characteristic pulse of this lesion, like the water-hammer pulse of aortic regurgitation, or the pulse of aortic stenosis, still in no valvular lesion does there occur so early and persist so decidedly through its course a pulse of such decided irregularity as to volume and rhythm and even tension.

In this, as in most valvular diseases of the heart, as long as myocardial hypertrophy is sufficient to completely compensate for valvular defect, subjective symptoms are not present; but in no valvular disease of the heart do symptoms show themselves so early.

The first symptoms are usually associated with the respiratory tract, viz., a shortness of breath upon exertion, running, going up stairs or climbing a hill; sometimes an hemoptysis. Contrary to the usually expressed opinion, pulmonary tuberculosis has been in my experience, a relatively frequent accompaniment of this form of valvular disease of the heart, and the hemoptysis is sometimes due to a combination of the two lesions. Epigastric pulsation is usually present and is often very distressing. Physical examination at this time reveals the characteristic signs of the disease. Inspection and palpation reveal an irregularly acting heart—the irregularity with palpitation is especially noticeable after exertion and may entirely disappear during rest. Palpation also reveals the characteristic diastolic thrill of this disease, felt sometimes at the apex, but usually a little above and to the right of the apex. This thrill is usually felt during the last half of diastole, ending in the systolic impulse. In this early stage of the disease, this thrill can usually be felt at all times and in all positions of the patient, but is often more distinct when the patient is in the upright position and leaning a little forward.

Percussion at this stage reveals little if any enlargement of heart—in fact, in uncomplicated mitral stenosis it is seldom that enlargement of heart can be demonstrated at any stage though hypertrophy of right ventricle occurs and sometimes increases the area of cardiac dullness to the left. It is only in the last stage when right heart is failing and dilated, that we get evidence of increase of area to the right, indicating distension of right auricle.

Auscultation shows that the first sound at the apex is relatively short, is high in pitch and snapping in quality and follows im-

mediately the murmur, which occurs during the latter half of diastole, is usually harsh and rumbling in quality and increases in intensity until it terminates in the peculiarly characteristic first sound. The first sound is usually heard of deeper tone and greater intensity over the right ventricle in the fifth and fourth interspaces to the left of sternum and sometimes in the epigastrium, due to the hypertrophy of right ventricle. The presystolic murmur is usually heard only over a very limited area, a little above and to the right of the apex and is not transmitted in any direction excepting in some cases, which are accompanied by mitral insufficiency, in which both murmurs may be heard in the axilla and even behind just below the angle of the scapula. This is the exception, however, not the rule, even when mitral insufficiency is complicating.

The diagnosis of this form of cardiac valvular deformity is most easy. The prognosis is most serious.

In discussing the prognosis we must consider briefly the nature of the lesion and its resulting effect upon the myocardium and the symptoms and physical signs indicative of the progress of the disease.

So far as the valvular lesion itself is concerned, it usually has its origin in an inflammatory endocarditis of infectious nature and is characterized by an exudation causing adhesion of the leaflets of the valves to each other along a portion of their free edges. Following this there is the formation of new fibrous tissue and then, as in all such formations, a persistent contraction of the newly formed tissue. There is thus brought about steadily progressive narrowing of the orifice, which continually calls for progressively compensating hypertrophy of left auricle and right ventricle. There comes a time when the opening is too small for any hypertrophy to overcome and then the case terminates, if the end has not occurred before through error of mode of life or intercurrent disease. On account of the retention of blood in the left auricle and the more or less pronounced stirring up of the same by the current from the hypertrophied right ventricle, there is a great tendency to the deposition of fibrin upon its walls and even on the auricular side and edges of the valves. Not infrequently a little particle of this fibrin becomes loosened and is swept off in the blood current. On this

account cerebral embolism is more common in this form of valvular disease of heart than in any other.

The other chief dangers are edema of lungs or paralysis of heart from over-distension of left auricle and right ventricle.

Before either of these accidents occurs there are many warnings to which, if attention is paid, the end may be postponed.

Congestion of lung, with dyspnea and hemoptysis, venous congestion of liver, ascites, and sometimes general edema and occasionally hydrothorax occur. It is remarkable how relatively infrequently hydrothorax occurs and how relatively frequently ascites is the first evidence of dropsy aside from some edema of base of lungs. In cases of mitral stenosis which have lasted any length of time, there is present always more or less cyanosis. As the disease progresses and the right heart becomes distended the auriculo-ventricular orifice becomes stretched or the muscoli papillares to which the chordae tendineae are attached becomes weakened and we have a tricuspid insufficiency. From this results the congested liver and distended portal circulation and early ascites. In some cases, we get a pulsating liver, and not infrequently the systolic murmur of tricuspid regurgitation is heard over the liver as well as in the usual area.

The physical signs, which indicate these changes are as follows:

Upon inspection we note the epigastric pulsation. Upon palpation we find that the pulsation in the epigastrium and especially in the precordium just to the left of the ensiform cartilage is powerful, while at the apex it is less strong. We still note the presystolic thrill. Upon percussion we note the increase in area of dullness, chiefly to the left but not much below the normal level. Upon auscultation, besides the presystolic murmur we note the relative weakness of both the first and second sounds at the apex, the greater intensity of the first sound just to the left of the left sternal line and occasionally over the lower portion of the sternum, and the marked accentuation of the pulmonic second sound at the base as compared to the aortic.

In this stage we have entered upon the danger period in mitral stenosis. A little carelessness in mode of life, a pronounced chilling of the surface of the body, an overloading of the stomach, the occurrence of constipation and straining at stool, an attempt to lift

a weight or run for a car or hurry up stairs, a sudden or severe mental or emotional shock, whether of pleasure or pain, might any of them produce so severe a strain upon the heart that, if the result were not immediately fatal, the effect upon the myocardium would be so bad that weeks or months might be required to restore anything like the equilibrium which previously existed.

As we approach the last stage in which the right ventricular hypertrophy fails to compensate, we have an increase in the serious symptoms and pronounced changes in the physical signs. Cardiac palpitation and precordial distress, alternating constipation and diarrhea, anorexia, cough with bloody or blood-stained expectoration, enlargement of liver, ascites, diminution of urine high in color, strongly acid, containing a large amount of indican and usually some albumen and casts are among these symptoms. The pulse of mitral stenosis is generally small and of moderately high tension. In this stage it is generally markedly irregular both as to the time, size, and tension of the beats, the tension usually being decidedly low.

The physical signs of this stage are, upon inspection, a tendency to cyanosis or bluish pallor, and an irregular pulsation in the precordium and epigastrium; upon palpation the thrill is just as apt to be felt early in diastole as in presystole; sometimes it is possible to distinguish two distinct thrills. With the advancing failure the presystolic thrill usually disappears. The cardiac impulse is markedly uneven—an occasional pronounced impulse and several weak and irregular ones. Percussion shows increase in the area of cardiac dulness usually in all directions, but never so great as in aortic insufficiency. Auscultation shows weakness of the first sound and the systolic murmur of the tricuspid leak, the early diastolic murmur and the disappearing presystolic, and accentuation of the pulmonary second sound. Sometimes the tricuspid murmur can be heard over the liver, which is always increased in size in this stage of the disease. Rarely the liver may be felt to pulsate. When the disease reaches this stage permanent improvement is out of the question, and a restoration to a state of moderate comfort with a very quiet life is the best that can be expected. A patient in this condition with pulsating veins, enlarged liver, cyanosis, dyspnea and dropsies of various kinds can sometimes be relieved of this serious state in

which the left auricle and right heart are distended, by the prompt opening of a vein and the withdrawal of 200 to 400 c. c. of blood. This withdrawal gives of course only a temporary relief and cannot be repeated too often, but I am sure it has occasionally saved a life and started the patient on several months of comfort.

Cases of mitral stenosis, after symptoms develop, rarely live longer than five or ten years. The chief reason for this is that it is almost impossible to so thoroughly impress them with the serious nature of their trouble as to secure their complete co-operation in the management of their own cases. Exceptions to this do occur. I have at present under my care a woman of sixty years of age who, to my positive knowledge, has had mitral stenosis for at least eighteen years. She is, however, an unusually intelligent person who is willing to follow directions explicitly for as long a period as necessary. Rarely, however, do cases of mitral stenosis reach the fiftieth year. Taken all in all, mitral stenosis is probably the most serious valvular defect of the left side of the heart.

The *diagnosis of aortic stenosis* is not nearly as easy as that of mitral stenosis. Cases of true aortic stenosis are probably the least common of the several valvular lesions of the left side of the heart, though a systolic murmur heard in the aortic area and in the vessels of the neck is almost as common as that of mitral regurgitation.

Aortic stenosis may be of inflammatory origin, due, as in the case of mitral stenosis, to exudation upon and adherence to each other of the free edges of the leaflets of the valve, or may be due to degeneration with deposition of calcareous material in the leaflets thus causing them to become stiff and to project into the lumen of the orifice, narrowing its calibre. It is apt to occur later in life than mitral stenosis and occurs a little more frequently in men than in women. Statistics, however, in this disease, unless verified by autopsy, are not thoroughly reliable, because so many cases are reported, the diagnosis of which was made merely on the murmur.

As a result of this lesion, the left ventricle hypertrophies and the hypertrophy, at first, is usually confined to the left ventricle. As long as that hypertrophy is sufficient the patient rarely complains of symptoms. Sometimes, however, even in this stage, he

complains of the painful heave of his heart and of hearing the murmur himself.

The pulse of aortic stenosis is characteristic, being small and infrequent, rising slowly, maintaining an eminence with little if any suggestion of the dicrotic wave and falling slowly, the vessel remaining fuller than usual through the diastole. The physical signs are those indicating the hypertrophy of heart by inspection palpation and percussion, this hypertrophy never reaching the enormous size produced by aortic insufficiency. Upon auscultation, the first sound is heard loud and deep toned and long at the apex; the second sound at this point being relatively weak. The interval between first and second sound is somewhat shortened, due to the encroachment of the prolonged first sound. At the base, over the aortic area, is heard a systolic murmur accompanying, but rarely taking the place of the first sound. This murmur is transmitted to and heard over the carotids and subclavian vessels, and sometimes over arteries further off, even the femorals. The second sound at the aortic area is usually short and not very intense. Sometimes, however, it is heard with considerable intensity at the junction of the right clavicle and the manubrium. The second sound in the pulmonic area is usually louder, longer and deeper-toned than in the aortic area. We are justified in making the diagnosis of aortic stenosis only when in addition to the murmur we have the hypertrophy of left ventricle and other signs mentioned and the characteristic pulse.

Aortic stenosis, once established, has a tendency slowly but steadily to increase, so that in order to compensate for it, there must be an increasing hypertrophy of the left ventricle. So long as this hypertrophy keeps pace with the stenosis and fully compensates for it, there will be no subjective symptoms. There comes a time, however, when, either through physical or mental strain, intercurrent disease or advancing years, the nutrition of the myocardium is diminished and the compensation fails, the ventricle is no longer able to empty itself completely, there is not room for all the blood from the auricle, the ventricle dilates, the mitral orifice is stretched, a leak occurs, pulmonary congestion and edema result, and if the patient lasts long enough, right heart failure ensues and general dropsy follows in its train.

Sometimes the aortic stenosis is so marked that the contraction of the powerfully hypertrophied left ventricle puts such a strain on the leaflets of the mitral valve and upon their chordæ tendineæ that they yield before the pressure and mitral insufficiency occurs. Thus we see that in either case the development of mitral insufficiency in a case of aortic stenosis is a matter of bad prognostic import. Sudden death in cases of aortic stenosis is rare unless the disease has associated with it angina pectoris and arteriosclerosis. Nevertheless, few subjects of aortic stenosis live to be sixty years of age, most of them dying under forty-five years.

The symptoms and signs which may be considered as indicating failing compensation in these cases are briefly as follows: Headache, dizziness, insomnia, a tendency to shortness of breath on exertion, accompanied by precordial distress and sometimes by true angina pectoris; a loss in tension of the pulse; weakening or disappearance of the aortic element of the second sound; weakening of the first sound at the apex; and the development of a mitral systolic murmur. Following this, the right ventricular failure and all the resulting venous obstructive dropsies, etc., are likely to develop.

When such failure is distinctly due to some overexertion or other definite single cause which may be avoided, the previous state of health may sometimes be re-established by prolonged rest in bed, a carefully selected diet, and the very gradual resumption of exercise. Under these circumstances, digitalis, strophanthus, or cactus, either alone or combined with nux vomica or belladonna, will be of decided value.

When, however, these symptoms have developed gradually and insidiously and cannot be traced to any single cause, it means that the resisting power of the individual and his capacity to develop myocardial strength have reached their limit, and little can be done to improve materially the patient's condition or postpone the end. On this account it is of utmost importance that when we have a patient with aortic stenosis under our care we should see to it that his general health is kept up to normal, that his excretions are well carried on, and that his blood does not fall below par.

When with either of the aortic lesions, there is associated arteriosclerosis, or chronic nephritis, as occurs very frequently, the outlook is so much the worse. In many cases the arteriosclerosis

is especially advanced in the aorta and the coronary arteries. Under such circumstances, angina pectoris is commonly present and makes the prognosis more serious. The combination of aortic stenosis and aortic insufficiency is not very common, though the occurrence of a double murmur at the aortic orifice is not at all infrequent. It usually means an aortic insufficiency and a roughened valve. Nevertheless, the combination does sometimes occur, and occasionally the supervention of a stenosis upon a previously-existing insufficiency has had a conservative effect when there has been sufficient reserve power in the individual to develop a compensating hypertrophy, the constriction of the orifice tending to lessen the amount of regurgitation during diastole and so to diminish the tendency to dilate. Usually, however, the double lesion merely puts together the evil effects of both and hastens the inevitable end. Taken all in all aortic stenosis is not far behind mitral stenosis in seriousness and by some competent observer it is considered the more serious of the two.

THE RELATIVE IMPORTANCE OF SYMPTOMATIC AND PHYSIOLOGICAL DIAGNOSIS IN NEUROLOGY.

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"Though there be but one world to sense,
there are two to reason, the one visible, the
other invisible.—*Sir Thomas Browne.*

It is a true and a trite saying that mankind is prone to take appearances for realities. The outward show of things, though perceived by and through our imperfect and unreliable organs of sense, is almost universally identified with truth and fact. The likelihood of error in the sensory interpretation of phenomena rarely enters the thought of the average untrained mind of man. Hence, we

note on every hand that most childish of all spectacles, the self-styled practical man proudly insisting that he knows what he sees and touches because he has implicit faith in his power of sight and touch. He knows that the setting sun is red because his eyes behold its red disc. He knows that there are supernatural beings because he has heard them in his dreams. One of these men told me he knew there was no such thing as neurasthenia because nobody had discovered its pathology. Another informed me that hysteria was nothing but devilishness in the woman, his knowledge being based on the fact that so-called hysterical women always act most devilishly. The brilliancy of the knowledge of this class of men is amusingly satirized by Emerson in his essay upon Montaigne. The one great thing that these men do not know—and therein they are so childlike—is that they are the slaves of their own senses which, as every tyro in psychology is aware of, are given to the most varied and bizarre modes of activity. Uncorrected observation affords very little knowledge that is of real value. To identify the results of mere uncorrected observation with *truth* and *fact* is not only unscientific, it is positively infantile and inane.

Behind every natural phenomenon on the one hand and behind the activity of the senses on the other are forces and processes at work which, if properly comprehended, make for a knowledge of truth and fact. Behind natural phenomena hide law and principle; behind sensorial manifestations sit judgment and reason. Until the former are uncovered by the long, painstaking labors of the latter, there is no real knowledge evolved that is of any great value. What the world usually calls a fact, namely, that which is perceived by the senses, is most often not a fact at all. Indeed, often it is not to be trusted even as a genuine appearance, until it is further explained by the trained reason of man as the appearance of something that is a fact and a truth. History continually testifies to this. It is this that renders so important the personal equation in astronomical calculations and the control in laboratory experimentation. The falling of the apple is the important fact in the eyes of the world; the explanation of the fall, with the enunciation of the law of gravitation, by Newton is, however, the only fact that is of real universal value. Of what value is our perception of the lines, or so-called canals, on the face of the planet Mars, since nobody knows the why

and wherefore of their existence? The moon, as a fact observed by the infant, differs from the same fact observed by the astronomer only in so far as the latter knows its origin, constitution and course. It was a fact once in the belief of so high an authority as the church that the sun revolved around the earth; and Galileo was threatened with excommunication for affirming that the earth revolved around the sun. Many illustrations might be given to prove that mere observation is by itself not only wanting in real scientific value, but is dangerously apt to mislead and afford erroneous information. Never should the results of isolated observation be unqualifiedly accepted as facts in the true sense of the word; they are mere appearances, outward signs, sensory reactions. They are always to be regarded with a high degree of scepticism and to be corrected from the logical deductions of the comparing or reasoning faculty. All this may seem very commonplace to repeat, but, it is so constantly forgotten in the practice of medicine that a restatement of it from time to time is absolutely called for. In general medicine, and especially in the practice of neurology, appearances are ever being taken for actualities. I am satisfied that we must attribute much of the difficulty which many find in the study of nervous diseases and the erroneous diagnoses thus made in neurology with the consequent result of an unsatisfactory treatment, to the taking of the mere symptoms for the actual disease, the identification of the shadow with the substance.

By the term symptomatic diagnosis I mean the diagnosis made from the symptoms alone; by physiological diagnosis I mean the diagnosis obtained from a rational, physiological explanation of the why and wherefore of each individual and particular symptom. The present lively discussion in regard to aphasia illustrates the distinction admirably. Hitherto we have been accepting appearances both clinical and pathological, with too slavish a belief that they represented actualities. Certain cortical areas have been too narrowly regarded as the sources of the various forms of speech. Not until Marie and others had begun to analyze language on broad psychophysiological lines did the medical world bestir itself to question its time-honored notions as to the nature and origin of aphasia. We will probably soon be going through the same sort of a revolution in regard to our ideas anent the sensory dissociations observed in

syringomyelia, as I indicated in my paper before the late meeting of the American Medical Association. The structural pathologists have been too dogmatic and have somewhat misled us. They have encouraged us to identify mere postmortem appearances with physiopathological processes.

Symptomatic diagnosis is the naming of a disease from a mere assemblage of observable phenomena, whether the observations be made before or after death; physiological diagnosis is the determination of the nature of the disease process by a scientific, pathophysiological explanation of its objective manifestations. It requires no special skill to assert that a patient has a paralysis, a St. Vitus' dance, a neuralgia, an epileptic fit. Many symptomatic diagnoses are latinized names only to cover our ignorance and laziness. The average diagnosis of headache, for instance, is a symptomatic diagnosis. Too often the patient himself makes as good a diagnosis as the doctor does. The physiological diagnosis of headache accounts for its appearance by a careful physiological analysis of it and of the nature of the whole underlying disease. It makes a scientific physiological analysis and synthesis of the head-pain with a correlation of it with all that accompanies it. To illustrate more explicitly: Suppose two patients were to appear and announce that they had attacks of severe headache. The indifferent physician accepts the patients' diagnosis, perhaps learnedly translates the term headache into cephalalgia, and orders one of the many highly-vaunted headache "cures." That is symptomatic diagnosis and symptomatic treatment. It is followed, of course, by the usual temporary and discouraging results. On the other hand the honest, intelligent, scientific physician analyzes minutely the headaches. The one, he learns, is associated with certain, well-defined general neurasthenic manifestations such as sluggish alimentary activity, general malnutrition, nervous depression, and occurs after periods of special stress like the using of the eyes toward the end of the day. In this way the diagnosis reached is not that of headache but of an underlying general nervous inadequacy, of which the cephalalgia is but one symptom. Instead of a headache "cure," the treatment, when properly arranged, resolves itself into a prolonged course of physical reconstruction; and, if accepted, is sure to be followed by a real and permanent cure. The other patient's head-

ache the same careful physician observes is like what the victim's father, perhaps, suffered from. It comes on more or less periodically, is preceded by indistinct premonition, rises to a climax in a few hours, rapidly dies away after a sudden fit of vomiting, and leaves the sufferer exhausted for a few days thereafter. This headache resembles an epileptiform seizure and is therefore a migraine. Like epilepsy itself, it represents an inherited state of constitution which may be provoked into distressing activity by any one of a dozen or more peripheral irritations. It calls, therefore, for a most minute examination of all the tissues and functions of the body and of the patient's entire mode of living. When the disturbing element is found, this, and not the mere symptom headache, will furnish the point of attack. In most cases the result will be a marked amelioration, absolute cure being out of the question by reason of the underlying neuropathic taint.

Primitive medicine is always symptomatic. The external manifestations being the first and most obvious, we have to make the best of them when knowledge is wanting as to the nature of the disease. Before Virchow's day all maladies were practically nothing but groups of symptoms. Bona fide homeopathy and lay medicine is symptomatic medicine. In regular practice there is still much—too much in fact—symptomatic diagnosis and treatment. The whole class of neuralgias, for instance, are handled as a rule solely from the symptomatic point of view. The same may be said of the coughs, the diarrhoeas, the paralyses, the psychoses. This is true even in connection with many of the best known affections. To many practitioners typhoid fever, diphtheria, tabes dorsalis are nothing but particular groups of symptoms. An analysis of the individual symptoms and their differentiation for the purposes of correlation are rarely undertaken.

Psychiatry is unfortunately still largely a collection of symptom-groups. This is because psychology itself has yet much to learn and because alienists are too often little acquainted with what modern psychology has discovered. Psychiatry, however, is not so wholly and absolutely symptomatic as one would infer from the way it is practiced throughout the general profession. Here mania and melancholia are made to cover nearly all mental manifestations of

an abnormal character. A close and scientific psychological analysis of the patient's vagaries is a thing almost unheard of.

Not only are psychiatry and clinical neurology thus disastrously dominated by symptomatic diagnosis and treatment, but even general pathology, it begins to appear, is more or less under the thrall of mere outward appearances. Until quite recently we have been identifying the structural changes observed post-mortem and under the microscope with the diseases themselves. We have been mistaking the debris for the explosion, the ashes for the conflagration, the wreckage for the storm. Pneumonia, for example, has been supposed heretofore to be the result of certain observable changes in the lung tissue; typhoid fever of alterations of a particular character in Peyer's patches; tabes dorsalis of a unique sclerosis of the posterior spinal columns; general paresis of a specific form of meningo-encephalitic inflammation. Now the idea is growing that these tissue changes are themselves nothing but gross symptomatic appearances, by-products as it were, of the disease just as the fever, the cough, the diarrhoea, the incoordination are. The disease pneumonia is to-day recognized as a general specific infective process even as typhoid fever is. Tabes and general paralysis are but late degenerative remains of a profound metabolic disturbance, involving this or that part of a neuropathic organism that has been stricken with a serious form of infection.

Diseases are not appearances merely; they are forces at work. They are not even the mere end products of these deleterious forces. It behooves us, therefore, if we sincerely desire an intelligent conception of any particular disease in a given patient, to discover these forces, these energies, and to combat them. Pathological findings are always interesting and suggestive; they represent one of the first steps toward the proper conception of the disease. They are symptomatic even as the anesthetics, and paralyses are, the only difference being that they are detectable after death while the latter may be observed before death. To slavishly follow a post hoc propter hoc mode of reasoning and to identify a disease with a mere post-mortem manifestation is quite as bad as to identify it with its ante-mortem sensory and motor manifestations. As Sherrington has aptly said (*The Integrative Action of the Nervous System*, Chas. S. Sherrington, 1906, p. 1.), "with the progress of natural knowl-

edge, biology has passed beyond the confines of the study of merely visible form and is turning more and more to the subtler and deeper sciences that are branches of energetics." Elsewhere I have discussed in detail neurological physiopathology, (*Clinical Physiopathology: The Need of a New Classification of Diseases of the Nervous System, Journal of the American Medical Association, Feb. 23, 1907*) as contradistinguished from mere structural pathology. I refer to it again here solely to point out that a clinical, as well as a pathological, diagnosis in neurology is at the present day wholly inadequate when it is based upon and confined to the symptoms only, the mere outward visible presentations. The analysis of the symptoms and the physiopathological explanation of the underlying morbid processes are not only quite possible to a high degree at present, but they are absolutely demanded in the practice of modern scientific medicine. Under the influence and fuller appreciation of this fact, better diagnoses will be made in neurology, better treatment instituted, and better results obtained. One of the net results—and not the least fortunate one by any means—of this will be the cessation of the persistent and monotonously wearisome wail, born of ignorance and unprogressiveness, that neurology is a hopeless branch of medicine wherein diagnosis is principally guess work and treatment is generally labor lost.

I would that space allowed me to illustrate, according to the newer modes of thinking, the distinction between symptomatic and physiological diagnosis. I will refer only to two common diagnoses involving differentiation. The one is selected from among the neuroses, the other from the so-called organic diseases. No malady is more often confounded with another than is hysteria with neurasthenia; none is more often mistaken for another than is multiple neuritis for tabes dorsalis. The error is always due, according to my observation, to the employment of the symptomatic rather than the physiological method in making the diagnosis.

Hysteria and neurasthenia are separate and distinct clinical entities. (*Hysteria and neurasthenia: Their Nature and Treatment Contrasted. L. H. Mettler, Illinois Medical Journal, December, 1907*). Each has its own symptom group. Up to a certain point the symptom group will identify sufficiently well the respective disease. If the symptom groupings, and the symptoms themselves, are

very typical, well-defined, and amply abundant, a symptomatic diagnosis may be made with some assurance that it is correct. Such typical cases of hysteria and neurasthenia, however, are few and far between. The vast majority of cases seen in general practice portray signs that are not uncommon in both affections. This at once brings in confusion and to rest the diagnosis in such cases upon the symptomatic manifestations alone must inevitably lead to error, unless, perchance, a happy guess is made. The analysis of the individual symptoms, upon some physiopathological basis, is the only safe mode of reaching anything approximating a correct and scientific diagnosis.

Let me illustrate. Headache, aboulia, vertigo, insomnia, cardiac disturbance, tremor, are some of the phenomena commonly noted in connection with hysteria and neurasthenia. They belong to the hysteroid and neurasthenoid states. When no typical signs of either hysteria or neurasthenia are present simultaneously with these mutual signs to assist in identifying the disease, a satisfactory diagnosis cannot be made from them alone. Let us once begin to analyze them, however, from the physiopathological standpoint of hysteria being a purely functional trouble, a psychosis, and of neurasthenia being a neuronc metabolic inadequacy, we will see, as with physical eyes almost, the whole underlying process of which the patient is the victim. In hysteria, for example, the headache portrays its psychic origin and nature in its location, onset, and severity. In neurasthenia the cephalalgia is not so much of a head-pain as it is a tired feeling in the head, a cranial paresthesia, more or less generalized over the entire skull-cap. So-called hysterical aboulia is not an aboulia at all; it is the outward manifestation rather of a psychic distraction. The patient fails to do certain things because her mind is absorbed with irrelevant and unrelated things. Neurasthenic aboulia on the other hand, is a real, though a partial, aboulia. The mental processes lying behind the neurasthenic's volition are sluggish from mere cellular or neuronc functional inefficiency. Hysterical vertigo may easily be seen to follow psychic lines; and it is always associated with psychic vagaries of a distinct sort. Neurasthenic vertigo occurs upon sudden or unusual physiological activity such as abrupt rising from the horizontal attitude, gastric irritation, or rapid movement before the eyes. Hysterical insomnia is,

as a rule, intensely psychic and purposive; it is a real insomnia, amounting at times almost to a vigil. It is the expression of excessive and abnormal mental activity. The mind is aroused, abstracted, or otherwise so exercised that sleep can find no lodgement in it. Neurasthenic insomnia is not so much insomnia as it is an irritable somnolency. It resembles cat-naps. The functional inadequacy of the nervous elements is such that the latter fail to undergo their normal alternation of physiological activity and rest. A little ingenuity on the part of the medical examiner, coupled with a modicum of horse-sense, will easily demonstrate the psychic origin of the cardiac disturbances and tremors in hysteria as contradistinguished from the physiological inadequacy of the neurones in accounting for the same in neurasthenia.

Now let us compare, in the same way, multiple neuritis and tabes dorsalis. Between these two affections there are likewise many symptoms in common, such as the pains, the hypo-esthesias, the lost reflexes, the incoordination. If these manifestations only are present one cannot make a satisfactory differential diagnosis. And yet how imperative a correct diagnosis is here in view of the diametrically opposite prognoses. Pains, lost reflexes, incoordination, Argyll-Robertson pupils, the anesthetics, analgesias, paralyses, and muscular atrophies do not constitute disease in any sense of the word. They are mere signposts indicating from different angles certain facts, that is all. The analysis of them from the physiopathological point of view and the consequent revelation, as it were, of the underlying pathological processes is what establishes the correct diagnosis. For example, be it remembered that tabes is a degenerative process in the great sensory apparatus, special as well as general; multiple neuritis is a degenerative-inflammatory trouble of the *nerve endings*. In tabes all forms of sensation may be, and sooner or later are, involved. In polyneuritis sensory disturbances are limited, with very few exceptions, to the peripheral cutaneous system of nerves. In the latter disease they are more definite and sharply localized than they are in the former. The motor elements are involved in polyneuritis, causing a true motor paralysis and muscular atrophy. Absolutely no true motor or efferent manifestations occur in tabes.

Illustration after illustration might thus be made to show the great superiority—indeed the positive necessity—of employing to-

day the physiological method of diagnosis instead of the merely symptomatic. I may, for want of further space, sum up the whole matter by saying that the symptomatic method, so commonly employed and based upon the mere observation and grouping of symptoms, is primitive, unscientific, and dangerous. To give value to the symptoms as the indicators of a given disease, they must, each and en masse, be minutely analyzed and be fully accounted for upon modern physiopathological and psycho-physiological grounds. Present day knowledge of biology, physiology, and psychology is surprisingly adequate for this purpose. A complete and exhaustive acquaintance with the modern physiological conception of the nervous system is a sine qua non for the intelligent and rational diagnosis to-day of the diseases of the nervous system. More study of the works of physiology and physiological psychology—I was almost betrayed into saying less study of the works of mere clinical neurology—is what is needed in the profession to-day, if neurology, one of the most fascinating and highly practical branches of medicine, second only to ophthalmology for scientific clearness and deductive accuracy, is to be relieved of the imputation of being a confused and hopeless art.

✓ SOME OBSERVATIONS ON GROCCO'S SIGN IN PLEURISY WITH EFFUSION.

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The diagnosis of Pleurisy with effusion is in most cases a comparatively simple matter. This is especially so when the fluid fills one-fifth or more of the pleural cavity, but when it is much less than this, physical examination does not often permit us to make a diagnosis with certainty, although its presence may be conjectured from other symptoms and problematical signs. In hospital practice it is a comparatively simple matter to plunge a needle in one or more places in the chest wall and to pump for fluid, but in private

practice this is not so keenly appreciated by the patient. Certainly there are a few private patients that enjoy 4 or 5 punctures without result and the attendant must be brave who will persist in the procedure after repeated trials although he may feel reasonably sure, that fluid is contained in the pleural cavity. Anything that helps to solve this difficult problem is appreciated by all of us. About five years ago Grocco of Florence described a hitherto undescribed sign occurring in effusions in the pleural cavity. Since then his findings have been corroborated by Ewart in England and Thayer in this country as well as by a host of Italian observers. Believing that the rank and file of the profession have not thus far thoroughly appreciated the value of this sign is my sole excuse for this article. Grocco found in cases of pleural effusion that a triangular area of *dulness* could be made out on the sound side.

The vertical side of this triangle is represented by the line of the apophysis of the vertebrae, the apex reaching a point somewhat above the level of the flatness of the effusion. The base is formed by the lower border of pulmonary resonance on the healthy side for a distance for from 2 to 10 cm. from the spine.

The hypotenuse is a line connecting these two points. Although the well-known curve of flatness of a pleural effusion is that of a dome with its highest point in the scapular line posteriorly, falling away in either direction toward the spinal and axillary margins yet the height of Grocco's triangle is always that of the height of the dome at its highest point or often even a little higher.

These facts can easily be determined by percussing from above downward along lines parallel to the spine and from without inward along lines parallel to the lower limit of pulmonary resonance. This triangle is larger on the left side in the case of right side effusions. Vocal fremitus is absent over this area. Respiration is distant and tubular in character over this area just as on the affected side. Sometimes just outside of the lower part of the hypotenuse a few moist rales may be heard, due to compression of the lung. This sign is best elicited with the patient in the sitting posture or while lying on the sound side. The most striking characteristic of this phenomenon is the variability of the triangle with change of posture, that is, it diminishes or disap-

pears when the patient lies on the affected side. This alteration on change of posture is not so marked with large effusions as with small effusions.

The causation of this phenomenon has excited much discussion. Normally percussion of the vertebral column gives a clear note because of the contiguity of the pulmonary parenchyma. This note becomes flat at the lower border of the lungs. In pleural effusion, however, the fluid not only takes the place of lung, but extends also anteriorly over the bodies of the vertebrae. In addition there is a displacement of the mediastinal structures with some slight compression of the lung on the unaffected side.

The presence of the fluid over the vertebrae inhibits their capacity for sonorous vibrations and in musical terms acts as a mute. As Ewart graphically states the dulled spine casts its shadow into the resonant chest, and its shadow grows downward in proportion to the increasing surface of its contact with the dull fluid which takes the place of dry resonant lungs.

The anatomical conformation of the vertebrae is also a factor in causing the dullness to be more marked below. The costo vertebral recess within the thorax, is deeper below, and gradually becomes more shallow and less capacious as it ascends, as a consequence there is more of the sonorous vibrations below.

Badull and Licculain have been able to trace a slight shifting of the long axis of the aorta under stress of large accumulations, and they warn us of the danger the vessel might run if a left Grocco triangle were to be aspirated near the spine by mistake.

Aside from its value in differentiating a pleurisy from an unresolved pneumonia, I have found it of signal service in the diagnosis of a purulent effusion. In four such cases the lower base line extended from 12 to 14 cm. to the opposite side of the spine, yet withall the effusion was not very large. It is my firm belief that the increased weight of the effusion was the cause of the large size of the triangle in these cases. Since my attention has been directed to the condition I have never found a simple effusion that extended more than 10 cm. Of course, one that would practically fill the entire chest might do so, but I believe that, given a small effusion with a relatively large triangle, we are almost certainly dealing with a purulent effusion.

A CONTRIBUTION TO THE DIAGNOSIS OF PLEURITIS.

By MARCELL HARTWIG,

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It is an undeniable fact that exudative pleuritis is frequently unrecognized in its early stages, even by experienced physicians. There seems to be a reason for this, namely, the text book doctrine according to which the liquid interposed between chest wall and pleura, being a poor sound conductor, must of necessity reduce the intensity of the respiratory noises. This is, however, not the case.

Whenever there exists an agglutination of the pulmonic and costal pleura to some degree the opposite really takes place; sound conduction becomes enhanced and tubular breathing may be heard over the pleuritic area. The tension or rather compression of the liquid exudate makes it act like a solid body with the result that the respiratory sounds are louder over the affected area than elsewhere. The aspirator should be employed when there is a possible pulmonic infiltration coexisting with symptoms pointing to pleurisy. The most reliable early symptoms of exudative pleuritis I think is the obliteration of the intercostal depressions. In order to recognize this phenomenon at an early period, inspection of the chest should ensue from some distance and both, front and back, should be carefully scrutinized. If the pleurisy exists on the right side only, the shifting of the apex beat—in the absence of cardiac hypertrophy—is another reliable symptom. In left-sided pleuritis this phenomenon is not sufficiently pronounced to be of any value to the examiner.

When the aspirator needle is not of sufficient length the effusion may remain unrecognized. In a patient of mine, a girl 16 years old, all attempts at aspiration had failed though a purulent exudate was suspected until she was in a moribund condition. Her life was saved by quickly plunging a bistoury through an intercostal space to procure thereby the exit of the pus. Had the aspirator needle been long enough I would have confirmed my diagnosis some weeks earlier.

The diagnosis of exudative pleurisy should never be based upon one symptom alone, but upon the totality of the symptoms, together with the history of the present illness. The short history of the following case, at present under my care in the hospital, will illustrate my contention.

The patient, a male, 20 years old, came to the hospital with the diagnosis "pleurisy." The temperature was 102 degrees F. Percussion revealed dullness from the spine toward and across the lower part of the left scapula. The aspirated fluid was dark-brown and contained considerable amounts of leucocytes, but no red blood corpuscles. The spleen was enlarged. Not being able to form a decided opinion as to the nature of the case I postponed operation which was requested by the attending physician. A few days afterward, when the spleen had become larger, I came to the conclusion that the long aspirating needle had pierced the diaphragm and gone into the spleen from which it had abstracted the dark-brown liquid. The enlarged spleen evidently had forced the diaphragm against the chest wall. Hence, I made the incision along the left costal arch that I would be enabled to turn either upward or downward as the occasion may demand it. Thrusting the aspirating needle into the exposed spleen a similar liquid as on the former occasion was withdrawn. By a deeper incision into the spleen I succeeded in emptying an enormous abscess of that organ. This procedure disposed of the apparent "pleurisy." The withdrawn fluid proved to be disintegrated blood and spleen tissue. The patient is about ready to go home.

THE DIAGNOSIS OF ACUTE CATARRHAL
CHOLECYSTITIS.By HENRY WALD BETTMANN,
Cincinnati.

Cholecystitis is the most common acute inflammatory disease within the abdomen. No important condition is so frequently overlooked. During the past 10 years over 1,000 articles have been published dealing with the gallbladder and the biliary passages. As a result of this extraordinary activity, our views concerning the inflammatory disease of the gallbladder have been revolutionized. In the earlier literature on the gallbladder we find the term "Cholecystitis" used rather vaguely as a synonym for catarrhal jaundice, or to represent an unusual and serious complication of gallstones. Later on, it became evident to surgeons during their operations for cholelithiasis that inflammation of the gallbladder was a very frequent accompaniment of gallstones and Riedel proposed the theory that the inflammation played a leading role in the symptomatology of gallstones. A more minute study of the subject from the standpoint of pathology and bacteriology has led to the convincing conclusion that catarrhal inflammation of the mucous membrane of the gallbladder is the direct cause of the formation of gallstones. Finally, we are beginning to recognize the fact that cholecystitis is a disease *per se* with definite etiological factors, with a typical clinical history and that the formation of gallstones must be looked upon as an episode (and not always the most important one) in the course of the underlying disease.

It is curious that since the recognition of the clinical and pathological importance of cholecystitis, so little effort has been made to ferret out this disease more keenly and trace it to its earliest beginnings. I may lay it down as a general proposition that whenever gallstones are present in an individual, that individual, at some previous time has had an attack of cholecystitis usually acute in character and recognizable as such at the time. I have learned to doubt the generally accepted statement that gallstones are found in patients who at no time in their lives have had symptoms referable to the gallbladder. During the past few years, since I have been on an

active hunt for cases of cholecystitis, and since I have not omitted to make a careful examination of the gallbladder region of patients suffering from even trivial abdominal complaints, I have been astonished at the frequency with which short attacks of catarrhal cholecystitis occur, especially in women. The majority of these attacks last only a few days and have usually been mistaken for attacks of acute gastritis, spoiled stomach or intestinal colic.

When one has once recognized the enormous frequency of this disease, and its etiological significance in the formation of gallstones, it is not hard to understand how gallstones are found in the bodies of from five to ten per cent of the adult population; nor does it seem reckless to state that cholecystitis is the most common inflammatory disease within the abdomen. Acute cholecystitis is several times as common in women as in men; in my own cases in the proportion of 5 to one; it occurs not uncommonly in the single, but by preference in the married; it very frequently occurs during the first 6 months or year following child-birth, often during the puerperium itself; one-third of the cases occur before the age of 30 years; over one-half before the age of 40; and over 90% before the age of 50.

CLINICAL HISTORY.

Both the mild and severe attacks of cholecystitis are often preceded by premonitory symptoms. Substernal pressure is the most common of these. A boring sensation behind the middle or lower fourth of the sternum is always to be looked upon with suspicion, especially if it occur independently of the taking of food, or at night or if it remain without apparent cause. Vague sensations of discomfort at the pit of the stomach or a persistent desire to belch, unrelieved by the act of belching are often the earliest symptoms. Pain usually ushers in the acute attack and is preceded by a chill only in the severe cases. The pain is more frequently referred to the epigastrium than to the gallbladder region. Sometimes the pain is entirely to the left of the median line; usually it is reflected to the back, between the shoulder blades; it is not generally radiating in character, and in the majority of cases is severe enough to justify the use of morphine. Vomiting is usually an early symptom and sometimes persists during the first 24 or 36 hours, or sometimes even longer; the vomitus consists chiefly of mucus, often mixed with bile

and later on nearly pure bile. Fever is absent in the mild cases, but often rises to 102 or 103 degrees in the severer forms and may last for several days. Leucocytosis is absent; the bowels are constipated; jaundice very rarely occurs. On the second or third day the acute symptoms subside, but may recur sharply on the least indiscretion of diet. A feeling of soreness is usually left for several days longer in the region of the gallbladder. In mild cases all the symptoms have disappeared at the end of a week. The severer cases may last two or even three weeks, and there may be dyspeptic disturbances, especially a recurrent feeling of substernal or epigastric pressure for weeks thereafter as an indication of the slowly subsiding catarrhal inflammation. When the acute attack is grafted upon a chronic condition (chronic cholecystitis with or without cholelithiasis) the symptoms may not clear up at all and the patient may continue to suffer, indefinitely, from various so-called dyspeptic disturbances in which pain, pressure and belching play the leading role.

PHYSICAL SIGNS.

In order to understand the physical signs it is necessary to bear in mind certain facts. The gallbladder is never palpable when normal, and the gallbladder region is not sensitive to even firm pressure in health. Accompanying every attack of cholecystitis there is a local active hyperemia of the neighboring liver tissue. This hyperemia is marked by swelling and local tenderness. Every inflamed gallbladder is more or less sensitive to pressure, and in almost every case of cholecystitis, chronic, subacute and acute (see the exceptions noted below) a hypersensitive and swollen local area can be demonstrated, by appropriate bimanual palpation. Bimanual palpation is the method par excellence of examining the gallbladder. I have seen surgeons of note omit this method of examination and thus entirely fail to make a correct diagnosis. The general practitioner is even less familiar with its value. The patient should lie in the dorsal position, either flat or with the chest and shoulders slightly elevated. It is often of advantage to flex the right thigh on the abdomen. The arms should be at the side and not raised above the head. The surgical position with a pillow or sand-bag under the patient's loin is a disadvantage rather than an advantage. The physician sits at the patient's right side as if examining for mobility of

the right kidney. The left hand grasps the loin; the right hand is laid flat upon the abdomen, the index finger just median to the attachment of the 10th rib. The patient inhales deeply and then exhales. The examination is made during exhalation. The left hand pushes forward the abdominal contents; the right hand burrows deep towards the region of the gall bladder. The left hand can often aid the sense of touch by exerting not a steady forward pressure but a series of interrupted pressures, to which the term "succussory pressure" might be applied. When the gallbladder is inflamed, the trained and experienced fingers of the right hand will feel a swollen area and the patient will wince under the examination. When the inflamed area is thus pressed upon, the pain will often be referred to the epigastrium. This is exceedingly characteristic and almost pathognomonic of cholecystitis.

This method of examination requires long training and experience and is especially valuable in cases of subacute and chronic cholecystitis, and in the mildest forms of the acute disease. During a smart attack of acute catarrhal cholecystitis, the physical signs are usually easily recognized. An early and prominent symptom is the rigidity of the right rectus muscle. Even during a violent attack this sign may be absent during the first few hours, or it may be kept in abeyance by very large doses of morphine, but usually during the first twelve hours after the onset, the right rectus muscle, especially in the upper quadrant of the abdomen will be tense. This rigidity naturally obscures all other physical signs for the time being. It has often led the unwary to diagnose appendicitis and even the most experienced clinicians have recorded their mistakes in this direction. With care this mistake can be avoided. In appendicitis the rigidity is most marked below the umbilicus, and nearly always the area just within the right superior spinous process of the ileum becomes more rigid than on the other side of the body.

In cases of acute cholecystitis of any severity the local tenderness of the gallbladder region can be easily elicited by ordinary deep palpation during inspiration. This is characteristic enough to establish the diagnosis at once in connection with the clinical history.

The right lobe of the liver may become exceedingly sensitive in certain cases of passive hyperemia due to valvular disease of the heart, and unless on his guard the clinician may be led to believe he

is dealing with a primary inflammatory condition of the liver. In these cases, the uniform enlargement of the whole right lobe of the liver and usually of the left lobe, and the recognition of the underlying disease will save the examiner from error. The Boas' point to the right of the lower dorsal spine is unreliable for diagnostic purposes.

The existence of a Riedel's lobe may tend to confuse the clinician, especially in the obese. In the majority of cases, though not always, a Riedel's lobe indicates the presence of gallstones and points to preceding attacks of cholecystitis. The Riedel's lobe can nearly always be accurately mapped out by bimanual palpation. When it is found markedly sensitive to pressure, the presence of gallstones may be inferred. I have known a very soft Riedel's lobe to be mistaken for a fluctuating gallbladder. A very movable right kidney may sometimes interfere with the exactness of bimanual palpation. The inexperienced examiner may even mistake the right kidney for the gallbladder and vice-versa. The kidney can nearly always be recognized by its deeper position in the loin, and by the characteristic feeling of escape as it slips from between the fingers at the end of the expiration. For palpating the kidney, the fingers of the right hand should be placed below the tenth rib; for the gallbladder just median to the attachment of the tenth rib.

Complications in the course of gastric and duodenal ulcers may lead to symptoms and signs simulating attacks of cholecystitis. Here close attention to the clinical history preceding the attack will be of the greatest assistance. The differentiation between gastric and duodenal ulcer and gallstones is not always easy, but this belongs to the subject of chronic and subacute cholecystitis which I shall consider in a subsequent communication.

THE ETIOLOGY OF EPIDEMIC POLIOMYELITIS.¹

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In the American Journal of the Medical Sciences, April, 1875, I recorded the observation that a large majority of cases of poliomyelitis occurred during the summer months. This fact was confirmed by Barlow in 1878 and subsequently by Gowers and other writers. In Keating's Cyclopædia of the Diseases of Children in 1890, I made a note of the time of onset in 235 cases which had been studied by me at the Philadelphia Orthopaedic Hospital and Infirmary for Nervous Diseases. Since that time I have analyzed 274 additional cases which have been treated at the same Institution, making a total of 509 cases. The time of onset in the whole series is as follows:

During the winter months there were 34 cases, divided as follows: December, 12; January, 14; February, 8.

In the spring months there were 43 cases, as follows: March, 11; April, 11; May, 21.

In the summer months there were 294 cases, as follows: June, 61; July, 109; August, 124.

In the autumn months there were 136 cases, as follows: September, 79; October, 45; November, 12.

If we include September and October among the hot months (and it seems fair to do this, as children are usually suffering from the effects of hot weather during these months) we will find that there were 418 cases from June to October inclusive, or 82% of the total number of cases recorded.

Gibney has recently recorded 550 cases, which were observed by him from October 1, 1906, to October 1, 1907. He states that of these cases there were 27 in June, 55 in July, 116 in August, 156

¹ Read before the Philadelphia Neurological Society, Nov. 26, 1907.

in September and 44 in October. He does not state, however, whether the cases occurred during these months, or if they applied for treatment at that time. Patients usually are brought to a dispensary for treatment many months after the attack—usually from three to twelve months after, and comparatively few of the recent cases are seen. At the Philadelphia Orthopædic Hospital and Infirmary for Nervous Diseases, 226 cases were examined as to the length of time it was after the onset of the disease, when the patient applied for treatment:

From one to seven days—23 cases.

From eight to 13 days—7 cases.

From two weeks to three weeks—26 cases.

From one month to nine months—95 cases.

From one year to eight years—75 cases.

During the past year there has been a great epidemic of poliomyelitis in New York, which has been reported by Gibney and Collins. There has also been an epidemic in Pennsylvania in Ridgway, DuBois and neighboring towns. There has been an increase in the number of cases in Philadelphia, during the past summer, but hardly sufficient to constitute an epidemic. For example, at the Philadelphia Orthopædic Hospital and Infirmary for Nervous Diseases, from January 1, 1906, to January 1, 1907, there were 25 cases, but from January 1, 1907, to November 26, 1907, there were 35 cases. About the same increase has been noticed at various other out patient services in Philadelphia. The greatest number of acute cases that have been seen have been at the Children's Hospital, Philadelphia, where at least a dozen recent cases were seen during the month of September. At the Nervous Clinic at the Jefferson College Hospital, 21 cases were treated from the first of July until the middle of November. Nearly all of these were in Russian Jews.

Some epidemics of poliomyelitis have been recorded, but one cannot avoid the suspicion that there have been a great number of epidemics which have been passed unnoticed. The first epidemic was noted in 1843 in the *American Journal of Medical Sciences*. This was reported by Colmer in Louisiana and quoted by Collins. It is spoken of as an "epidemic of paralysis in teething children." No epidemics were reported since that time until one by Medin in

May, 1887. In 1893 another epidemic was reported by Putnam in and near Boston, and quite an extensive epidemic was reported by Dana and Caverly in Rutland, Vermont, in 1894. An interesting feature of this epidemic was the fact that horses and birds were affected. A Plymouth Rock hen which was paralyzed, was examined post-mortem, and changes in the spinal cord, similar to those in anterior poliomyelitis, were found. A liveryman living in Rutland tells me that four of his horses died of the affection.

The following is a list of all of the epidemics I have been able to find after a careful search.

EPIDEMICS.

1. Colmer—1841—Louisiana.
Am. Jour. Med. Sciences, 1843.
2. Bergenholtz—1881—Sweden.
Collins—*Medical Record*, Nov. 2, 1907.
3. Cordier—1885—near Lyons (France)—June and July.
Lyons Medical—1887.
4. Medin—1887—Sweden (May, June, July and Aug.).
Tenth International Congress, Berlin, Vol. II.
5. Putnum—1893—Boston (Aug., Sept., Oct.).
Boston Med. and Surg. Jour., 1893.
6. Caverly—1894—Vermont (summer).
Journal Am. Med. Asso. Vol. XXVI, 1894.
7. Medin—1895—Sweden.
Nord. Med. Ark., 1896, No. 1.
8. Altman—1895—So. Australia (March and April).
Wade—*Australasian Med. Gazette*, 1904.
9. Bordurant—1896—Alabama (summer mos.).
Medical News—Vol. LVII, 1900.
10. Leegard—1899—Norway.
Norsk Mag. for Laegevidenskaben, 1901.
11. MacKenzie—1899—Dutchess Co., N. Y.
Medical Record, 1902.
12. Painter—1900—Gloucester, Mass. (Summer).
Boston Med. and Surg. Journal, 1902.

13. Woods—1901—San Francisco (May, June and July).
Occidental Med. Times, San Francisco, 1903.
14. Wade—1903—Sidney, Australia ("in summer mos., Dec. and Jan.").
Australasian Med. Gazette, 1904.
15. Litchfield—1903-04—Sidney, Australia ("summer weather and cooler than usual").
Collins—*Medical Record*, Nov. 2, 1907.
16. Wickman—1905—Sweden (summer).
Zeitschrift f. Klinische Medizin, No. 63, 1907.
17. Harbitz & Scheel—1903-4-5-6—Norway.
Journal Am. Med. Asso., Oct. 26, 1907.
18. Geirsvold—1905—Norway.
Norsk Mag. for Laegevidenskaben, 1905.
19. Collins—1907—New York.
Medical Record, Nov. 2, 1907.

The etiology of epidemic poliomyelitis is, of course, the interesting and important thing to study. It is evident from what has been stated above that a large majority of cases of sporadic poliomyelitis occur during the summer months, and all of the epidemics which have been recorded, in which the season of year of the occurrence is given, took place in hot weather. The nature and progress of the disease indicate clearly that it is due to an infection. It is obvious, therefore, that the micro-organism which produces the infection, is one which is developed by hot weather. A large proportion of cases have some form of intestinal trouble. Dr. Gibney writes me that nearly 60% of 100 cases analyzed by him, had some form of intestinal or gastric disorder. It seems probable, therefore, that the micro-organism producing the disease has found its entrance into the system through the intestinal tract and thence to the spinal cord.

THE DIAGNOSIS OF EXTRA-UTERINE PREGNANCY.¹

By H. J. BOLDT,

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New York.

Under the term "Extra-uterine Pregnancy" we include all fecundations which are situated outside the uterine cavity. While anatomically extra-uterine pregnancy may be subdivided into several varieties, from a clinical point of view such differentiation is not essential. *Tubal* pregnancy, however, is the most frequent form of ectopic gestation.

In endeavoring to make the diagnosis of ectopic gestation from objective pelvic symptoms, we must always bear in mind the comparatively delicate structure surrounding an extra-uterine fecundated ovum, and therefore avoid a rude manipulation of the pelvic organs, so as not to cause a rupture of the sac. It is especially important to bear this in mind when examining under an anesthetic a patient in whom an ectopic gestation is suspected.

Uninterrupted extra-uterine pregnancy is but rarely recognized, and then usually by mere accident, when operating for other conditions, or when examining a patient for a complaint causing symptoms independent of extra-uterine gestation. I have never palpated a tubal pregnancy prior to the occurrence of symptoms due to the pathological implantation of the ovum, except in one instance—a double tubal gestation. In this case, however, the right tubal gestation did give rise to symptoms, and was diagnosed. On the opposite side a tubal enlargement was felt, the nature of which was not diagnosed, but on operation the tubal distention proved to be due to a tubal pregnancy which had not begun to be interrupted by bleeding within the tube, or by any inflammatory process about the tube. So far as I remember, the distention was limited to the outer-two-thirds of the tube, which was freely movable and did not possess the

¹ Read at the meeting of the Southern Surgical and Gynecological Society at New Orleans, Dec. 17, 18 and 19, 1907.

doughy feeling of a pyosalpinx, or the tense elasticity of a hydrosalpinx, which I had supposed to exist on that side.

The symptoms may be divided into subjective and objective. There is no reason why a physician should ever be called upon to see a patient with extra-uterine pregnancy unless she has subjective symptoms pointing to some pelvic disorder.

The omission of menstruation, while of great importance, still is not a constant sign, because sometimes the menstrual period may be delayed by another cause than pregnancy. Sometimes, too, rupture of an impregnated tube may occur prior to the time of an expected menstrual period. Peritoneal irritation, caused by the boring of the growing ovum into the tube wall, eroding the small blood-vessels, preparatory to subsequent rupture, is likely to cause more or less pelvic pain.

When bleeding takes place into the lumen of the tube, owing either to the separation of the ovum from the tube wall in the course of a tubal abortion (the most frequent termination of tubal gestation in my experience), or to erosion of the tube wall to such an extent that a *slight* rupture of the tube takes place, the pains are severe, cramp-like, and intermittent. The symptoms of tubal abortion and of partial rupture are identical, so far as my observation goes, especially if the defect in the tube wall is small. Usually atypical bleeding is present, but in most instances the blood lost is peculiar, almost characteristic, and of a nature very seldom found in other pathological conditions. It is dark, tarry, and of a smeary consistency. I have known such bleeding to continue steadily or at intervals for weeks, especially in cases in which an hamatocele had formed.

Sometimes, with the existence of ectopic gestation, menstruation may appear regularly to the day, but then it is usually very scant, so that the patient will have noticed the difference in quantity from previous flows.

If a profuse intraperitoneal hemorrhage suddenly takes place, the patients become very anaemic; have a small, weak pulse, and cold, clammy perspiration, yawn, and are apathetic. If not in collapse, they complain of intense pain in the lower abdomen, which soon becomes more general. Usually they refer the beginning of the

intense pain to that side of the lower abdomen where the rupture has occurred.

If in the history we can elicit that a decidua has passed, this is important as confirming a suspected extra-uterine gestation. If the physician finds that the membrane has been passed in the form of a closed three-cornered sac with three openings, corresponding to the tubal openings and the opening for the internal os, and that it contains no ovum or a defect for its site; and if, moreover, the decidua is of sufficient thickness to exclude its being menstrual, and if other corroboratory signs of extra-uterine pregnancy are present, the decidua is very certainly due to an ectopic gestation.

The absence in the history of the passing of a decidua, does not, however, exclude the presence of ectopic gestation. In the large number of extra-uterine pregnancies that I have seen (nearly three hundred), less than half gave an affirmative history on this point. A decidua may be passed unnoticed, or it may remain in the uterus and eventually be transformed into normal endometrium.

Such subjective symptoms as nausea and vomiting rarely occur when the ovum is implanted outside of the uterus. We may lay it down as a rule that subjective symptoms of importance do not manifest themselves until a process tending toward the *interruption* of the pathological impregnation is under way, and that these symptoms then chiefly consist of the sudden onset of intense intermittent cramp-like pains in the lower abdomen, referred primarily to the side on which the pregnancy exists. A very frequent symptom observed among my patients, was an intense lancinating pain in the lower part of the rectum.

Among the objective symptoms, that of least importance is the presence of colostrum in the breasts, except in persons who have never been pregnant, or have not been pregnant for a number of years, and even then the symptom is of importance only if corroborated by other symptoms. The changes of pregnancy about the genitals are also less marked in ectopic gestation than in intra-uterine pregnancy, although some softening in the consistency of the uterus is almost invariably present, as well as a slight increase in its size. In a few instances, perhaps two or three times, I have seen patients in whom this change also was absent. On the other hand, other **inflammatory** conditions of the pelvic organs may cause

changes in the uterus and in the appearance of the mucous membrane, similar to those of the early stage of ectopic gestation. I have, however, found that patients almost invariably complained of severe pain when the vaginal portion of the cervix was slightly moved forward with the examining finger.

Let us now turn to the palpatory findings in the pelvis in instances of extra-uterine pregnancy. Before discussing them, I would again lay stress upon the great care that is to be exercised in making an examination in all instances where we have the slightest reason to suspect such condition—as we always have when the history includes delayed menstruation, atypical bleeding, and intermittent, cramp-like pain; or perhaps the loss at the regular period of a smaller amount of blood than usual, if associated with intermittent pelvic pain at that time or soon afterwards. A uterine sound should *never* be used, except perhaps under unusually intricate conditions, nor should a traction forceps be used on the uterus; this may also be said of making firm pressure on an existing pelvic mass. Disregard of any of these precautions may lead to the rupture of a fecundated tube; to the rupture of the sac containing the ovum; or to the rupture of an hamatocele, with perhaps fatal hemorrhage; or to a peritonitis with fatal termination. Furthermore, all patients that have been examined under such circumstances should be kept under constant observation for evidence of a subsequent intraperitoneal hemorrhage, unless the opening of the abdomen at once follows the examination.

It has been mentioned that the opportunity to palpate an interrupted tubal gestation is very rare. I am aware that the statement not infrequently occurs in literature that such diagnosis was made, if we take the trouble to carefully analyse such cases, it will almost invariably be found that bleeding into the tube had taken place, showing that the process of interruption of the gestation had been begun. The bleeding within the tube causes a distention of the tube, which is well marked, except at its uterine end, where the tube, in the ordinary forms of tubal gestation, retains its normal or nearly normal calibre. It then gives rise to a distinctly palpable tumor of small sausage-shaped outline; and sometimes if the tube has prolapsed to the floor of the pelvis and is free from peritonitic adhesions, it is possible in women who have a thin abdominal wall to

palpate the tube in its thickened part, and feel its non-distended parts. The abdominal end of the tube must of course still be free from blood. The tube itself is hard in consistency if the blood has become coagulated. It is mobile, and is usually painless to the touch.

The palpatory finding is changed, however, when the bleeding has become more profuse, as in cases of progressing tubal abortion, or of partial tubal perforation. We have then a pelvic hematocele, the blood accumulating in the cul-de-sac of Douglas. The formation of such retro-uterine hematocele causes the tube to be pushed upward, and the summit of the hematocele remains in close proximity with the abdominal end of the tube. If much blood has been accumulated in the pelvis behind the uterus, the pouch of Douglas is pushed more or less downward, and the uterus is dislocated upward and forward by the retro-uterine blood-tumor. The bulging of the cul-de-sac and the position of the uterus are influenced by the amount of blood in the pelvic cavity. In small hematoceles the blood does not reach the lateral walls of the pelvis, so that the hematocele, with the uterus, has a certain amount of mobility, making the two, uterus and hematocele, feel as though they were one mass, because the hematocele becomes intimately adherent to the posterior wall of the uterus.

The feeling conveyed by an hematocele to the examining finger depends to some extent upon the duration of its existence. A fresh extravasation of blood feels flaccid and fluctuation is readily detected; but, as soon as the blood becomes coagulated the consistency changes and it becomes harder. In nearly all instances there was a difference to be felt in the consistency of the tumor at the floor of the pelvis; some points feeling quite hard, and others softer, depending on the condition of the blood in the retro-uterine tumor.

In considering the topography of an hematocele, we must bear in mind, that as a result of previous pelvic inflammation, the cul-de-sac may have become obliterated in whole or in part, which would prevent the formation of the usual outlines of the hematocele. I have seen several such cases, and unless one takes all the features into consideration the diagnosis becomes more difficult. Again, in instances of tubal abortion or in partial tubal rupture, when the bleeding takes place slowly, the extravasated blood is located unilat-

erally, according to the direction of the affected Fallopian tube. The usual site of an hematocele, however, is a little to the side and behind the uterus. I have also seen a few instances in which the fecundated tube was so high up in the pelvis that it could not be palpated, and in these, in the absence of other pathognomonic symptoms of extra-uterine pregnancy, the diagnosis of the ectopic gestation was not made until after the occurrence of complete rupture. The cause of the high position of the tube was found to be adhesions of the tube high up in the pelvis,—in one instance to the vermiform appendix and cæcum.

In those patients who have a retroversion with retroflexion of the uterus, and become afflicted with tubal gestation, the impregnated tube lies *anteriorly* to the uterus. Consequently, when such gestation becomes interrupted, the hematocele, if one forms, lies anteriorly to the uterus.

The most frequent palpation findings are from a combination of bleeding into and outside of the tube, which permits us to palpate the distended tube. This is more solid in consistency than the hematocele which has formed in close contact around it. The hematocele is somewhat more elastic than the distended tube. It lies to one or the other side of the uterus.

When an impregnated tube, as the result of an inflammatory process, becomes adherent to the posterior surface of the broad ligament and ruptures on the part which is agglutinated to the broad ligament, the blood is extravasated between the folds of the broad ligament, and forms an hematoma, having a broad contact with the uterus. According to the quantity of blood extravasated, the folds of the broad ligament become more or less distended, even to the pelvic boundaries; and sometimes, in profuse hemorrhages, the blood extravasates beneath the pelvic peritoneum and beneath Douglas's pouch, surrounding the vagina and rectum and passing to the opposite side, thus producing, as soon as the blood becomes firmly coagulated, palpatory findings resembling those of parametritis.

So far, we have considered only the diagnostic features of early extra-uterine pregnancy. After the second half of the gestation period, the diagnosis depends upon our ability to determine the

presence of a fetus outside of the uterus, which is as a rule not very difficult; unless the fetus is located between the folds of the broad ligament, and the woman has thick abdominal walls, or the fetus has been dead for some time, and is not in close contact with the abdominal parietes or the cul-de-sac of Douglas. At this period of gestation, the history will also aid us very much, because in nearly all cases, in addition to the symptoms that are present in the early stages of ectopic pregnancy, there are also history-symptoms that show that one or more attacks of local or even general peritonitis have occurred.

A pregnancy in the interstitial part of the Fallopian tube causes bulging of the uterine cornu of the invaded side. This bulging, being in an upward direction, necessarily makes the cornu much higher than that on the opposite side, and the adnexus is given off at a much lower plane than that of the impregnated side. In the event of rupture, which nearly always occurs during the first half of the gestation period, sometimes before the end of the second month, the hemorrhage is very profuse and requires rapid intervention. The diagnosis is based upon the determination of pregnancy with the appreciation of the local findings.

Pregnancy in the horn of a bicornuate uterus should not cause difficulty in diagnosis, if the pregnancy has gone to the fifth month or more and the fetus is still living. During the first half of gestation, in addition to the subjective symptoms of pregnancy, one should ascertain the presence, alongside the non-impregnated cornu, of the impregnated cornu, which is of a doughy consistency, unless the fetus is dead. In such event, the impregnated uterine horn becomes harder and more globular, so that it may be mistaken for a pedunculated myoma, or perhaps an ovarian cyst. But if one takes all factors into consideration, the history, and the objective symptoms to be found on bimanual examination, the diagnosis should not be difficult under ordinary circumstances. It may, however, be quite difficult if the patient is corpulent and has rigid abdominal walls.

Judging from my own experience, the greatest difficulty in making a correct diagnosis is in differentiating an ectopic gestation in its early stages from purulent inflammatory conditions of the

adnexa, because with the latter, patients sometimes give a history identical with that of ectopic gestation, and objectively the tube is distended and firm in consistency. Also, the change in the uterus and in the vaginalmucous membrane may be similar. We may have the delayed or omitted menstruation, or atypical bleeding, and I have seen cases where the blood was similar to that described above as typical for the bleeding of interrupted extra-uterine pregnancy. Furthermore, the character of the pain is sometimes identical, except that no collapse ever follows, as in profuse hemorrhage. I frankly confess that occasionally in such cases I am unable to make the differential diagnosis without a surgical intervention.

Such occasional resemblance is, however, comparatively seldom met with. The instances I have seen were invariably cases of acute pyosalpinx, or chronic cases with an acute exacerbation. Furthermore, two symptoms to which I have learned to attach importance were also absent; namely, pain in the lower part of the rectum, and pain on moving the vaginal portion of the cervix forward with the examining finger. It is difficult to explain why these symptoms should be absent, because there is present a perimetritic inflammation in that locality.

In most cases of tubal suppuration, there is no softening in the consistency of the uterus, especially of the portio vaginalis; in fact, this is usually quite firm. Furthermore, colostrum is but seldom found in the breasts of such patients, because either they never have been pregnant, or they have been sterile for a number of years. It is well, therefore, to bear in mind the possibility of error, especially in this class of cases, and particularly if one or more symptoms of a typical history, or one or more of the objective symptoms of ectopic gestation, are wanting.

The error most frequently made by physicians is that of mistaking ectopic gestation for early abortion. I have cared for more women with extra-uterine pregnancy who had been curetted by their attendant under the impression that they had had an incomplete abortion than for any other erroneous diagnosis. In taking the history it will be found that with abortion cases the pains usually begin with a moderate aching or drawing pain in the lumbar region, radiating toward the hypogastrium. In tubal pregnancy the pains

are much more intense and are unilateral in the beginning, and the periods of intermission are generally further apart.

In abortion the blood is usually or frequently passed in clots; in the bleeding from ectopic gestation it is smeary, quite dark, and of tarry consistence, and large clots are rarely passed. Furthermore, the quantity of blood lost in abortion is much larger than is the case either in tubal rupture of the partial variety or in tubal abortion. (Extensive tubal rupture does not come into consideration here, for differential diagnosis.) Occasionally, however, the blood in ectopic gestation is very light in color; but then the color is so much lighter (a pale pink, in fact,) that one should not mistake it for the bleeding of early abortion.

On bimanual examination, the changes to be felt in the uterus are usually more marked in abortion of an intra-uterine pregnancy than is the case in extra-uterine pregnancy. In the greater number of patients with extra-uterine pregnancy, the ovum with its sac may be felt, which is not the case with early abortion. There is, however, a risk of mistaking between an early intra-uterine pregnancy, and a coexisting hydrosalpinx, pyosalpinx, or small ovarian cyst. In such conditions, indeed, it may happen to the most experienced diagnostician to err, although, so far, fortunately it has not happened to me.

I have always relied upon the more pronounced changes that take place in intra-uterine pregnancy, so far as the uterus and the vaginal mucous membrane were concerned. In some instances it is undoubtedly good practice to wait and keep the patient under careful observation. If such patient comes under observation without the subjective symptoms of an interruption of ectopic pregnancy, and one perhaps suspects this abnormal condition, then the history aids very much in helping to decide the true status; because in ectopic gestation, patients seldom go longer than six weeks, or at the utmost two months, without showing symptoms pointing to the condition we are now considering. Furthermore, an intra-uterine pregnancy of two months' duration, can in most instances be diagnosed by an expert; exceptions may occur, however.

It has happened recently, and during a comparatively short period, that I have been called to see three different patients with a view to operating upon them for extra-uterine pregnancy, when in

reality they had a retroflexion of the gravid uterus in the second or third month of gestation. The pregnant uterus, lying in the cul-de-sac of Douglas, was mistaken for an hematocele, the elongated cervix being mistaken for the whole uterus. This may lead to an error, especially when the abdominal parieties are thick, so that palpation becomes difficult. If one is careful such an error need not occur, because in retroflexion the cervix usually has a direction upward and backward, a combination of flexion with version, and the upper part of the uterine neck does not broaden out as the corpus of the uterus broadens above the neck. Furthermore, if one reaches high up, the acute flexion angle can be felt, and the body of the pregnant uterus can be traced in connection with it. Of most importance is the fact that the body of the uterus is absent anteriorly. In addition, bladder symptoms in retroflexion are usually more pronounced than they are likely to be in instances of hematocele. Pelvic pain is also likely to be a more marked symptom of hematocele than in retroflexion of the gravid uterus. While atypical bleeding is present almost invariably in hematocele, it is seldom that a patient with retroflexion of the uterus loses blood unless abortion is imminent, and then the character of the blood is different in the two conditions. In retroflexion the pregnant uterus has an even, round contour, whereas in hematocele the contour is more or less irregular. In hematocele the consistency of the retro-uterine tumor changes very soon, whereas in retroflexion the consistency of the posterior tumor does not change, unless uterine contractions occur at the time when the examination is made; but such change in consistency should be readily appreciated by anyone with experience.

I remember two cases in which the lateral version of the normal pregnant uterus gave rise to an error in diagnosis by the attending physicians; the lower segment of the uterus remained anterior and was firm in consistency, whereas the large lateroverted segment was relaxed, and being to one side of the median line, gave the gentlemen the impression that they had an extra-uterine pregnancy to deal with. The history, and the direct connection with the lateral displacement, with subsequent correction of the displacement, readily cleared up the cases.

A large hematocele, in which the inflammatory reaction has passed off, and the upper contour of the hematocele in consequence has become more sharply defined, may give rise to the erroneous diagnosis of an ovarian tumor, because the upper boundaries of such hematocele are smooth and rounded off, and in connection with the uterus, have a moderate degree of mobility. But one accustomed to examining many gynecological patients, can readily discern the difference between a large hematocele and an ovarian tumor, even if the latter is diffusely adherent. An ovarian tumor is always of a more globular, a more symmetrical contour. The uterus is rarely so much displaced upward and forward in an ovarian tumor, as in the case of a large hematocele.

Appendicitis may sometimes be mistaken for extra-uterine pregnancy, or the opposite error may occur. In an inflammation about the appendix, however, the exudate, if there is one, will be higher up in the pelvis, more toward the iliac fossa. Furthermore, there is always a febrile condition in appendicitis, and none of the symptoms of pregnancy are found unless pregnancy and appendicitis are coexistent. Besides, if one is careful in eliciting a patient's history, there will always be found a difference.

A perforative peritonitis may resemble a ruptured tubal gestation with profuse internal hemorrhage; both conditions being associated with an attack of intense abdominal pain, followed by collapse. In appendicitis with perforation there is absence of the symptoms of profuse internal hemorrhage; instead of the anemia which exists in extensive rupture of tubal gestation, the peculiar facial expression of peritonitis is seen, and continuous pain is a more prominent symptom.

The history is likely to aid us very much. With perforative peritonitis we are not apt to get a history pointing to pregnancy; on the contrary we are often able to elicit facts pointing to a previously existing lesion of another organ in the abdominal cavity. An additional aid may be found in the use of an aspirator syringe with an exploratory needle of fairly coarse calibre, with which the cul-de-sac of Douglas can be punctured through the vagina without the use of an anæsthetic. If on aspiration the syringe barrel is filled with blood, and other evidence corroborative of ectopic gesta-

tion is present, we may be quite certain that it is not a perforative peritonitis that caused the severe illness.

While I have endeavored to outline briefly the conditions which are likely to help in establishing the diagnosis of ectopic pregnancy, as a result of my own experience, I freely admit that even the most expert diagnostician can not be infallible.

A CASE OF MECKEL'S DIVERTICULUM CAUSING OBSTRUCTION OF THE BOWELS.

By J. H. CARSTENS,
Detroit, Mich.

As the following case presents some rare phenomena I deem it a proper one for publication.

Dr. A. H. Steinbrecher sent the patient to Harper Hospital with a diagnosis of appendicitis and I saw him shortly after his arrival, September, 17th, 1907.

Mr. E. S., aged 58, had always been a robust, hard-working man in the best of health, up to two days previous to this disease. His temperature was 97.5; pulse 90. Complained a good deal of abdominal pain, and there was a good deal of distension. The principal pain was to the right of the umbilicus. He had vomited continually, and the efforts made to move his bowels were of no avail. Examination of the urine showed it to be about normal and, as the symptoms did not seem serious, I concluded to await further developments. He felt much better, retained some liquid, passed a little gas by rectum. His temperature was 99 degrees; pulse 90. He remained in this improved condition all day. In the evening his pulse and temperature were the same. Small quantities of liquid had been given him during the day. Still complained of some pain in the abdomen and the distension. A hypodermic of morphine quieted him and he went to sleep, which he had not done for some nights.

Early the next morning, however, he started to vomit again. The vomit seemed to be of a fecal nature. I thought best not to wait

any longer, but had him immediately prepared for operation, which was performed at eleven A. M. Temperature 90 degrees and pulse still 90.

Making the incision to the right of the umbilicus, three inches in length, over the spot where he complained of the most pain, I found when the abdomen was opened a bunch of intestine adherent together. Gently untangling it, I found a Meckel's diverticulum surrounding the loop of intestine and nearly closing it. (Fig. 1.) I should judge the opening might have been the size of an ordinary lead pencil. Gently loosening it I removed the diverticulum and closed the intestine in the usual manner. The intestine that had been surrounded by the diverticulum was quite dark, just as it is in cases of strangulated hernia. (Fig. 2.) After I had sewed the intestine, the strangulated part of the bowel took on a healthy rosy color and was again extended to nearly its normal size.

There was considerable shock following the operation. The patient was quite restless during the night, and the next morning, Sept. 20th, his temperature was 101 degrees and pulse 120. During the day we got him to pass a great deal of gas with an alum injection, but he did not improve. His temperature increased to 102 degrees and his pulse increased continually until it was imperceptible, and he died Sept. 21, at 1 A. M., 38 hours after the operation.

Although the patient had passed a reasonable amount of urine for a person who took very little liquids into his system, the urine became scanty immediately after the operation, and in fact suppressed, only a few drachms could be obtained with the catheter, and the dull state of his mind made me give the diagnosis of uremic coma following the operation as the cause of death.

Post-mortem examination six hours after. The place where the Meckel's diverticulum had been, seemed perfectly healthy, the calibre of the intestine that had been strangulated was restored to normal, and it seemed at first that the kidneys were the cause of death, but on exploring the right side of the abdomen, beginning at the cecum, we found an absolutely gangrenous appendix which was walled in, covered by the cecum and the omentum, and I concluded that the physician who had first made the diagnosis was right after all.

Fig. 1



Fig. 2



A Case of Meckel's Diverticulum. J. H. Carstens.

1900

To unravel this case seems to me rather difficult, as the appendix was walled in and the general peritoneal cavity was not affected. The patient had evidently no symptoms indicating appendical trouble when I saw him, although it is claimed he at first complained of pain over McBurney's point.

As he had no temperature, I did not make a blood count; there seemed no indication for it. All the symptoms were exactly those met with in intestinal obstruction, a strangulated hernia for instance, and I at first thought that it might be a volvulus which had been relieved by nature, (on account of the improvement of the symptoms,) and did not operate on him promptly, also the symptoms had improved during the first twenty-four hours. Coming because the man was in a very precarious condition and it was necessary for me to work very quickly. This case again shows how easily we may be mistaken in diagnosis, and that cases which seem so very plain and clear are apt to lead us astray.

THE DIAGNOSIS OF POLYCYSTIC KIDNEY IN ADULTS.

By CHARLES GREENE CUMSTON,
Boston.

In order to discuss the diagnosis of polycystic kidney as met with in adults, it is first necessary to consider the symptomatology of this affection, which, up to the present time, has, in reality, been little discussed. This disease may be absolutely latent and is only found at autopsy and these cases are certainly very frequent. Then, again, the affection may remain latent until the time when it kills the patient by a more or less rapidly developing uremia. The comatose form of uremia is very common and particularly interesting, and it may be said with truth that polycystic disease of the kidney should certainly be included among the causes of sudden death.

The uremia may be slower in development and more characteristic and in quite a number of recorded cases it will be found that the patients have been under observation for several days for gastro-intestinal disturbances, vomiting and diarrhoea, coinciding with intense headache, slight edema and a marked albuminuria, so that a diagnosis of uremia from interstitial nephritis has usually been made. These patients complain of no pain in the renal region so that abdominal palpation is not resorted to and under these circumstances the real nature of the disease is, of course, overlooked. However, I would mention a rather curious fact, namely, that, in a certain number of instances, besides the symptoms of uremia, one has noted the presence of a tumor in the renal region, although no importance was attributed to it. Such facts as these prove that the diagnosis could have been made in a certain number of cases.

I would now refer to the complete symptomatology, i. e., those cases where all the symptoms exist and where a diagnosis should consequently be made. The symptoms met with are those of chronic nephritis and secondly the physical symptoms of two symmetrical neoplasms present in the renal region.

At the time the patients come under observation for symptoms of uremia they have been the bearers of polycystic renal disease for some time and consequently quite a marked cachexia will be present, in every way comparable to that met with in advanced interstitial nephritis. The patients are frequently pale, thin, and have a yellowish waxy look, but occasionally the loss of flesh is masked by the presence of edema. However, in a certain number of instances the general condition of the patient appeared to be flourishing, and this exists when the disease has been latent for a long time, suddenly manifesting its presence by important symptoms. It should be pointed out that in some cases the affection is compatible with a vital activity which frequently brings about uremia in subjects having chronic nephritis. Thus, for example, in a case reported by Dubar, the patient had had five pregnancies at term and nursed her five children without any symptom of eclampsia.

Generally speaking, however, the general health is poor and out of 49 cases in which the general condition is noted, it was more

or less involved in 43 and frequently the patients were cachectic. In about 75% of them symptoms of interstitial nephritis predominated, while in the remaining 25% evidences of renal neoplasm were present. In some cases in which the general condition was good and where a unilateral polycystic kidney was diagnosed, it may be that one was not dealing with the same pathologic condition as that under consideration in this paper. It is hardly necessary to add that there is no elevation of the temperature unless some intercurrent acute affection arises and also if one makes exceptions of certain instances of perinephritic abscess complicating polycystic disease of the kidney, or of supuration arising in the cysts.

The bronze coloring of the skin is a symptom that has been noted, recalling to one's mind that of Addison's disease. It has been noted by a number of competent observers and in one case there were a few pigmented spots which caused the diagnosis of disease of the adrenals to be made. However, these glands were found normal, but, in another case reported by Laveran, one of the capsules had undergone a pathologic change. I believe that these cases are certainly of interest and should call the attention to the adrenals in cystic disease of the kidney. I would here point out that the pancreas may also be the seat of a lesion and perhaps the suprarenal gland may also be involved giving rise to the bronze skin which is pathognomonic of tuberculosis of this gland, but which may be met with in all destructive lesions arising within it.

Edema has been considered a rather rare symptom in polycystic kidney, but, in point of fact, it is mentioned in a large number of cases. It frequently extends to the lower limbs, body, face and eyelids and occasionally it is very marked. In some cases—and here it acts like the edema of interstitial nephritis when uremia is approaching—it diminishes during the last days of life. Generally, however, the edema is slight and intermittent. It assumes the characters of the edema encountered in interstitial nephritis where the urine contains a small quantity of albumen and evidences of renal impermeability. I shall point out that these symptoms are also to be found in the history of polycystic kidney and that the cases where the renal symptoms are similar to those of parenchymatous nephritis, are exceptional.

Pollakiuria has been observed in several cases of polycystic kidney. Bond's patient had very frequent desire to urinate during the early part of his disease and this is also noted in the cases recorded by Stiller, Gairdner, Lamy, Malmsten and Bensaude. It is not an easy matter to form an opinion as to the quantity of urine emitted during the disease, because this greatly varies according to the period of the affection at which it is studied. Thus, in the cases of Lejars, Jaccoud and Bouchacourt, who mention a complete anuria during the last few hours of life, in those recorded by Lipari and Piazza-Martini, in which the anuria lasted several days, one is simply dealing with patients who have arrived at the end of the pathologic process, in other words to the stage of anuria, which is common to all renal affections, even those which ordinarily present a polyuria. The quantity of urine should be studied before the terminal period of the disease, in which case it will be found that polyuria is frequent. This polyuria is, however, not marked and is often intermittent; the amount may attain from 3, 5 or 11 litres in 24 hours, but, more frequently, it amounts to 2 and $2\frac{1}{2}$ litres.

It has been said that the polyuria may be intermittent and this intermittency may alternate with other symptoms as is often seen in nephritides. For example, in Lejars' case it was noted that, at the time the patient suffered most, the urine diminished in quantity and there was even suppression for ten hours; during these short periods of anuria, there was intolerable pain in the right lumbar region. Then the urine was voided and the pain diminished. It will be seen that this clinical picture closely resembles that of renal lithiasis and there is another instance reported by Vitrac in every way similar to the one just referred to. Consequently, it may be said that, in cases of polycystic kidney, a rather accentuated polyuria may be met with, similar to that encountered in interstitial nephritis.

Albuminuria is the rule in polycystic kidney and, although it has not been noted in all cases, it is because in a large number of them, the patients are seen only when in coma and the urine has not been obtained. But in several instances the urine drawn from the bladder after death was found albuminous. According to Luzzatto albumin was very abundant in 16 cases, of a medium amount in 27, while a trace only was found in 36 cases. These facts are quite similar

to the amount of albumin found in interstitial nephritis, where the amount is usually slight, contrary to what is observed in the parenchymatous form. The physical characters of the urine are also those of interstitial nephritis. Generally it is pale and of low specific gravity. Of 54 cases collected by Luzzatto the density in 45 was lower than normal, while in only 9 cases was it normal or above the normal. Casts are met with sometimes. They were very numerous in the case recorded by Steiner and only infrequently will epithelial casts be found, as in Arnold's case. More frequently, they are simply granular or hyalin casts. In all these cases there was a coexisting albuminuria. In 28 cases the presence of leucocytes or renal epithelium was also noted. Urea is usually small in amount, not only during the period of confirmed uremia, but during the entire course of the disease. Thus, in the case of Menetrier et Aubertin, it amounted to 5.73 grms. in 26 hours. The proportion of salts, such as the phosphates and chlorides is usually low and sugar is always wanting. The same cannot be said of the biliary pigments, either normal or modified, even in those cases which present marked hepatic lesions.

Hematuria has been considered by Lejars as frequent in polycystic kidney. In fact, it has been mentioned 40 times out of 250 cases. Of this number 18 cases presented a palpable tumor, while in 16 there was no tumor and in 6 the polycystic kidney was unilateral. It is very variable in its aspects, because it has been seen during the entire disease, but rarely has it been sufficiently abundant to in itself present a serious prognosis. It may last for a long time and return. For example Gairdner's patient had repeated attacks of hematuria accompanied with attacks of pain during eighteen years. On the other hand it may appear late in the disease, as in Whipham's case, where it only occurred two days before death, while in the instance recorded by Schachmann the patient voided nearly 250 cc. of almost pure blood during his last hours of life. Sometime the hematuria is produced by traumatism, or an infectious disease, such as pneumonia, and often it is announced by a recrudescence of the lumbar pain. Usually, it accompanies the attacks of pain which are similar to nephritic colic, and then again, it may alternate with polyuria.

It is difficult to explain the production of hematuria satisfactorily, for there is nothing in the pathologic study of a polycystic kidney which would lead one to suppose that renal hemorrhage could take place. It is difficult to see what portion of the cystic growth could bleed, because this neoplasm has no relationship to carcinoma or sarcoma of the kidney, where one meets with an ulcerative process of the renal tissue and of the tumor itself, which is more less vascular. Now, there is nothing of the vascular nature in a polycystic kidney and nevertheless, I would point out that collections of blood may take place in the cavity of the cysts, since the liquid contained in them bears more or less of a chocolate color. It is possible that a hemorrhage of a similar nature takes place in the pelvis of the organ, or, on the other hand, the hematuria may merely be the result of a simple congestion of the organ, a pathogenesis admitted by some writers in the case of other renal neoplasms.

Cardiac hypertrophy is a symptom frequently noted and is more evident in the left ventricle as in the case of interstitial nephritis. The apex is lower than normal and is usually found in the sixth intercostal space; the precardiac area is increased and the apex of the heart beats rather violently. By auscultation, one may sometimes detect an increase of the second aortic sound (Strubing), sometimes an aortic murmur (Orrillard); and lastly, in some cases, there is a bruit de galop. In other words, these are merely cardiac symptoms quite similar to those encountered in interstitial nephritis.

Certain writers have described arterial hypertension, the pulse being hard and tense. This phenomenon is in direct relationship with the condition of the heart. And the hypertension is quite similar to that of interstitial nephritis, and, without any doubt, is the result of renal impermeability.

As far as renal permeability is concerned it has been found considerably diminished by Menetrier and Aubertin; they found that one gram of potassium iodid appeared in the urine 25 minutes after its ingestion in a very small amount, then increased and reached its maximum fourteen hours later. Elimination continued with a medium intensity and was quite constant during the second and third days following, while it had completely ceased on the fourth day. If one considers that normally such a dose of iodid reaches its

maximum of elimination within from three to six hours and rarely lasts after the space of thirty hours, it becomes evident that there is a considerable retention of the iodid in the organism, and that, if there is no delay in the appearance of the drug in the urine, the time of the maximum elimination has been considerably delayed. Such a condition of affairs take place exactly in the same way in the arterial type of chronic nephritis.

These same authors have also experimented to see if the iodid passed through the walls of the cysts and in the liquid withdrawn by puncture during life, it was impossible for them to detect the drug by the ordinary laboratory methods. But, after death, having a larger quantity of liquid at their disposal and resorting to more minute procedures, they were able to detect its presence in small quantities in the liquid taken from cysts—nearly eight days after ingestion.

All the symptoms of interstitial nephritis are consequently found in polycystic kidney, namely, polyuria, albuminuria, slight edema, cardiac hypertrophy, arterial hypertension, renal impermeability and this is so striking that in a large number of cases reported, the diagnosis was one of nephritis when the patients could be followed for sometime. But, to these symptoms another should be added the presence of a tumor.

If one cannot feel the tumor itself one may elicit a sensation of resistance in the renal region and, as may be conceived, this is the most important symptom of the disease, because it alone is pathognomonic and, although it has been quite infrequently noted by observers, it is because no functional symptom has drawn the attention to the renal region.

Like all renal growths the polycystic kidney develops forwards. The abdomen is occasionally large and distended; it is symmetrically developed when one of the cystic kidneys is considerably larger than the other, while, in the case recorded by Rose, an enormous fluctuating tumor filled the entire left side, occupying the hypochondrium and extending beyond the median line.

By palpation a rather hard, irregular tumefaction can be felt, fluctuation is rarely made evident and the growth is painless. It

often extends into the iliac fossa and it is easy to feel it under the ribs. The tumefaction extends almost to the median line and is not influenced by respiratory movements and generally there is no renal ballottement. Although one may ordinarily discover one of the polycystic kidneys with ease, its mate is generally much more difficult to discover. However, by exploring the opposite side of that which is the seat of the most accessible growth, and one should always carry out this examination, one will very frequently find another tumor quite symmetrical to the first one found, although much smaller and deeply seated under the ribs. In order to detect it considerable pressure must be used so as to depress markedly the abdominal wall. Above, these degenerated kidneys are hidden on the right side under the liver, while, on the left, they are covered by the spleen, and on this account it is quite difficult to distinguish the percussion dullness of the two organs. Percussion is always of little use, at least on the anterior aspect of the abdomen, where the diseased kidney is almost always covered by the colon, whose sonority hides the renal dullness. On the sides it may somewhat help to map out the limits of the growth. It is possible that the stethoscope may be of service, but this means of investigation does not equal the most simple one of all, viz., palpation, which is generally quite sufficient to make evident a polycystic kidney. In 22 cases the growth was found on both sides; in 18 it was only found on one side. As may be seen, this is a quite frequent circumstance and that often one of the growths, the largest or the most superficial, is the only one to be detected. In some cases, a polycystic kidney is hidden by an infiltration of the perinephritic tissues. And lastly, in some cases, the organ has been found movable and, in one case, a diagnosis of carcinoma of the stomach was made on this account. But, usually, the mobility is not pronounced and the growth gives one more the impression of a movable kidney and this condition of affairs has been recorded in 11 cases.

These growths rarely give rise to fluctuation and when fluctuation can be elicited, it is found in certain points in the tumor, without doubt being due to the greater or less distension of the cysts, or, in some cases, points of softening have taken place in the growth.

Usually, the left kidney is more easily accessible, or, when a bilateral growth has been found, the left kidney has been the larger. During observation of the patient the tumors have been found to increase in size, but what is more interesting is an increase in size of the cystic growth coinciding with a period of more or less marked anuria.

According to Lejars, pain is frequent and presents in an attenuated way the characters of pain arising in malignant disease of the kidney. Its maximum is found in the lumbar or lumbar abdominal regions. It is shooting and often extends towards the abdomen, the iliac fossa, thigh or testicle. Sometimes it extends upwards towards the thorax. It often takes place in attacks similar to those of nephritic colic and may or may not be accompanied with hematuria. In the cases reported by Jarman and Duplay it was increased by the erect position and fatigue, without doubt the result of traction on the pedicle of the kidney. Frequently, the pain merely is complained of as a sensation of weight in the lumbar region, or a continued dull pain, slightly increased by the erect position.

Pains, with extension into the lower limbs should, it would seem, be in relationship to compression of the lumbar plexus which is in relationship to the growth. The blood vessels are often compressed, so that, in one case, varicose veins appeared sometime after the commencement of the pain, first on the right side and then on the left. In this case the growth on the right was larger than on the opposite side and the veins increased at the same time that the growths underwent their development. An increase in size of the subcutaneous abdominal veins met with in another case is also probably due to compression.

Exploratory puncture has been resorted to in only four cases that I am aware of. In the case of Mauwerk and Hufschmid, the fluid was limpid, light yellow, slightly acid and contained albumin. In Ferron's case it was coffee colored, while in that recorded by Hohne, this was most interesting because the growths on both sides were punctured. On one side the fluid was cloudy, dark brown in color, alkaline and contained much albumin, while the fluid withdrawn on the other side was light yellow in color and contained epithelial cells. Ménétrier and Aubertin drew off in the same

puncture from the same growth several different fluids containing all the elements of the urine. No epithelial cells were found and bacteriological examination proved it to be sterile. In four cases when puncture was resorted to no disturbances were produced either of a uremic or an infectious nature. From this it may be concluded that puncture is inoffensive and that it alone allows one to make a positive diagnosis of polycystic kidney, because it draws off a liquid presenting all the chemical characteristics of the urine, thus proving the renal origin of the cysts; and still more by allowing one to withdraw from the same tumor several different fluids, it allows one to affirm that the disease is polycystic in nature. Consequently, I believe that puncture should and ought to be resorted to every time that a suspicion of polycystic kidney exists. Only one thing I would suggest and that is that the needle employed be of fairly large calibre and the point of election should be just below the ribs and on the side rather than in the abdominal region because one will thus be less likely to pass through the peritoneum or the colon, which, in certain cases, may be flattened out over the tumor and detected with difficulty. I would also point out that, after puncture, the tumor may decrease considerably in size, although, after a few days, it will return to its former dimensions.

In the exploration of the liver, one must not hope to come upon as precise indications as those furnished by the examination of the kidneys. In point of fact, the liver is far less frequently hypertrophied than the kidneys and generally it is hidden under the ribs. However, when increased in size to any extent so that it may be perceived by palpation and percussion, the tumor may be sufficiently large to fill a considerable portion of the abdomen. The diagnosis was made more precisely in Peterson's case, where palpation showed an unequal surface of the hepatic gland. Sometimes the organ is painful on pressure. In only one case that I am aware of was puncture of the liver undertaken, and here one was dealing with an enormous growth filling the entire right flank, so that the diagnosis was uncertain between a cancer of the kidney and a hydatid cyst of the liver. Puncture of the liver withdrew a bright yellow liquid containing no hydatids. As to other symptoms of the hepatic type it may be said that they are exceptional. Just as hydatid cysts

which, only destroying a small amount of parenchyma, produce no signs of hepatic insufficiency, so cysts of the liver are not accompanied by any apparent disturbance in the biliary functions; they do not give rise to the presence of biliary pigments in the urine and icterus is, I believe, hardly, if ever, noted. In one instance alone was ascites present.

The final outcome of polycystic kidney is always the same, namely, an unavoidable consequence resulting from the progressive destruction of the renal parenchyma. This uremia may occur spontaneously little by little, following a progressive increase of the symptoms of interstitial nephritis to which becomes successively added those of renal insufficiency; or, on the other hand, it may arise suddenly due to an intercurrent disease, or it may be produced by a too hasty nephrectomy. In the latter case it occurs within forty-eight hours to three days after the operation. When the uremia becomes established little by little, it is more prone to take on the gastro-intestinal type. In this case, vomiting is the most frequent phenomenon, while diarrhoea is less common. The stools may be bloody. To these symptoms pyrosis and epigastric pain become added, the latter being very similar to that met with in eclampsia. The uremia may also assume the nervous type, in which case headache is the most frequent symptom; it is accompanied by somnolence, apathy and some psychic disturbances. Eclampsia is rare and the same may be said of tetanic contracture which has been noted by Jaccoud. Cramps have been observed by Eve and Legrand. Disturbances of the vision are frequent, such as inflammation of the retina and amblyopia. Myosis has also been mentioned in this form of uremia as in uremia from other causes.

All these nervous disturbances are simply the prelude of the comatose state, which is the ultimate phase of the uremia of polycystic kidney, as it is the end of all other uremias. The respiratory disturbances are far less frequent than those of the gastro-intestinal and nervous disturbances; Legars has mentioned attacks of nocturnal asthma and continued dyspnoea. Death does not occur of necessity from uremia, but may be the result of intercurrent diseases, of which pneumonia and broncho-pneumonia are ordinarily met with. And lastly, death frequently accrues from cerebral hemorrhage.

In some instances,, suppuration of the cysts or the perirenal tissue has been observed, in which case pain will be complained of in the lumbar region, while the urine becomes purulent, when the cyst opens into the renal pelvis. The perinephritic abscess has also been known to open into the intestine or even the stomach. Surgical interference in these cases has resulted in death, although in one case, reported by Thiriar, a fortunate outcome occurred after spontaneous opening of the abscess and death only occurred later as the result of a nephrectomy.

The diagnosis of cystic degeneration of the kidney has been considered as practically impossible. This diagnosis is, however, possible because it has been made in a number of instances during life and these have been controlled by autopsy. As already pointed out, it has only been rendered absolutely evident by puncture in four cases. Now, not only this diagnosis is possible, but I am firmly of the conviction that, when the symptoms characterizing the disease are complete, it is relatively easy. One has merely to recall that, in a certain number of instances, those reporting them have noted the presence of one or even two tumors in the renal region, coexisting with symptoms of chronic nephritis, although no other conclusion was drawn. Is it not evident that, if, under these circumstances, cystic degeneration of the kidneys had been thought of, the diagnosis would have probably been easy to make? It appears to me that, although the diagnosis has so rarely been made, it is because the polycystic kidney has been wrongly considered as an affection in whose symptomatology the symptoms due to the neoplasm are foremost, as an affection with the symptomatology, so to speak, surgical. On the contrary, most usually, it is not the growth which draws attention, but the symptoms of chronic nephritis and usually the resulting uremia. The neoplasm must be looked for, because, ordinarily, the attention of the attending physician is not drawn to it. Consequently, one should recall a polycystic kidney in every case where symptoms of chronic nephritis which are somewhat atypical, are observed, or when symptoms of sudden uremia predominate; or, in cases of lumbar pain less characterized than those of nephritic colic and which are occasionally accompanied with hematuria. Likewise, in cases of renal neoplasms, not presenting a distinct sympto-

matology of carcinoma, sarcoma, hydronephrosis or pyonephrosis; and lastly, and above all, in every instance of bilateral renal growth. Bilaterality of the tumor is, in point of fact, a most important sign, but it must be admitted that it is frequently wanting and that one of the kidneys is, either less voluminous or more deeply seated than the other, so that it will pass by unnoticed. Thus may be explained the diagnostic errors of hydronephrosis, pyonephrosis, renal tuberculosis and carcinoma of the kidney.

The diagnosis from the differential standpoint must be made with chronic nephritis and particularly interstitial nephritis. It is well understood that if nothing draws the attention to the possibility of a renal tumor, no pain and no uneasiness in the renal region, it is quite excusable not to think of polycystic kidney when in presence of an infection whose symptomatology is simply that of a nephritis, complicated or not with uremic accidents. However, although this affection is not common, it is a wise precaution to palpate the renal region of every case of acute or subacute uremia. In point of fact, it is known that uremia is not of necessity the ultimate result of a nephritis and that it may be due to a hydronephrosis or a bilateral pyonephrosis as is demonstrated in instances of carcinoma of the uterus and to which we would add polycystic degeneration of the kidneys. In all these diseases palpation will allow one to arrive at a correct diagnosis and to discover the unilaterality or bilaterality of the lesion, while puncture will remove all doubts.

In hydronephrosis we have a unilateral tumor, generally less voluminous than a polycystic kidney, fluctuation is often present, while its surface is smooth. Catheterism of the ureters may be resorted in order to demonstrate that one kidney is functionally destroyed. In hydronephrosis puncture will only exceptionally result in the withdrawal of a bloody fluid and frequently the liquid is in composition more like that of normal urine than in polycystic kidney, at least when the hydronephrosis is of relatively recent date.

Renal lithiasis whose principal complication is nephritic colic is not infrequently more or less completely simulated by the attacks of pain arising in polycystic kidney, but in the case of the former the renal tumefaction is much more painful on pressure and it is

present during the entire attack, so that, after the pain has disappeared, it also disappears. For that matter, tumefaction is frequently wanting and does not represent a true tumor as in the case of a cystic kidney. Then, again, the symptoms, with very rare exceptions, are strictly unilateral, at least the physical symptoms, because, as is known, the pain may, in some few instances, extend to the healthy kidney by a reno-renal reflex. Let it also be said that hematuria is more constant and that the anuria is more intense during the colic while pain along the penis is very marked and that calculi may be found in the urine emitted after the attack, which, of course, settles the diagnosis.

A mistake in diagnosis between a polycystic growth with a movable kidney has been made upon several occasions, when one of the kidneys, losing its relationship with the renal pocket has descended towards the iliac fossa. One of the symptoms which causes confusion in the minds of the surgeon is the pain produced by movable kidney and which occasionally may be quite similar to that set up by polycystic kidney, namely, a painful weight, especially marked when the patient is standing. But in the case of movable kidney the tumor is unilateral, it can be reduced into the lumbar fossa and is accompanied by no symptom of nephritis.

Pyonephrosis is ordinarily accompanied by symptoms of suppuration, that is to say, a more or less marked elevation of the temperature and especially purulent urine. The tumor is unilateral and, if punctured, a purulent or sero-purulent fluid will be withdrawn. In these cases one is dealing with symptoms of infection and not with those of nephritis.

Carcinoma of the kidney is unilateral. It has a far more rapid progress and is accompanied, especially if of an epitheliomatous nature, with an early cachexia. The growth increases rapidly in size, and, especially in the case of sarcoma, may attain enormous dimensions. And here hematuria is almost always constant, it is large in amount and repeated, to such an extent that the patient may become so anemic that the anemia may in itself become a danger to life. Pain, which may be absent, is, however, usually intense.

And lastly, let us mention neoplasms of the spleen and especially hydatid cysts of this organ and those of the liver. When the latter

organ is the seat of this disease and becomes pedunculated, it may closely simulate a renal tumor to such an extent that the phenomenon of ballottement may be present. A hydatid cyst, of the kidney is generally single and unilateral and, as far as I have been able to ascertain, is far less frequent than polycystic kidney. In this case, however, puncture alone will allow one to make a correct diagnosis.

And lastly, as other causes of an erroneous diagnosis, I would mention cysts of the mesentery, of the pancreas and all abdominal growths, even ovarian cystomata, but these are errors in diagnosis that one will rarely have occasion to commit.

THE DIAGNOSIS OF ABNORMALITIES AND DISEASES OF THE URETERS.

By F. M. JOHNSON,
Boston.

Diseases of the ureters rarely occur alone, but are usually associated with lesions of either the bladder or the kidney or both. In the diagnosis of diseases of the ureters, there is no method which gives such certain results and which offers such a positive means of identifying the presence of abnormal conditions in the ureter as catheterization through the cystoscope.

By means of catheterization of the ureter, we are able to recognize most of the anomalies, injuries and diseases of this organ, and at the same time, are often able to apply treatment for inflammatory conditions, strictures, etc. It is my purpose in this brief paper to review, in a general way, the most common lesions of the ureters and to speak of their diagnosis, as well as to consider the clinical history of an illustrative case, which shows strikingly the results of ureteral lavage.

The *anomalies* of the ureters correspond very closely to those of the kidneys. When one kidney is absent, the corresponding ureter is usually also lacking. When there is a horseshoe kidney, there

may be two separate ureters supplying but one kidney. Double ureters have been described in some cases, the duplicity being either complete or incomplete. When the ureters are incompletely double, the upper part only is divided. The double ureters may run parallel or may cross. A double ureter is said to be quite common and to occur in about 3% of cases (Wagner, Handbuch der Urologie, Vol. 2, page 62). Congenital stenosis or congenital obliteration of a part of the ureter; congenital torsion and kinking of the duct, and abnormal insertions of either end of the ureter are other anomalies which may be met with. Occasionally, the ureter has been found inserted into the female urethra. In other cases, the duct terminated in a blind sac, or ended in a cyst-like dilatation at the vesical end.

A very common anomaly is an abnormal position of either one or both ureteral openings in the bladder. This, in my experience, is quite frequent, and I have often noticed that while one ureter was in its normal position, the other was difficult to locate and when found was entirely abnormally situated.

Injuries of the ureter are rarely caused by external violence, and in most cases reported, the pelvis of the kidney was also involved. Le Dentu was able to collect only 20 cases of this sort from the literature. These injuries are caused either by compression or crushing, or else by stab wounds. Occasionally gunshot wounds have been reported. The diagnosis of these injuries is made from the appearance of a traumatic pseudohydronephrosis, due to the extravasation of urine retroperitoneally through an opening in the ureter. Sometimes the extravasation travels down into the region of the psoas and the swelling appears in the iliac fossa. If the peritoneum is broken through, urine and blood flow into the cavity, and peritonitis rapidly develops. Operative treatment is, of course, indicated at the earliest possible moment in these cases.

A much more common and clinically important class of injuries of the ureter are wounds resulting from some operation, such as a vaginal or abdominal hysterectomy. In such cases the passage of a catheter will at once locate the injury. Ureteral fistulae in women resulting from compression of the fetal head during labor are also diagnosed by the passage of ureteral catheters.

Ureteritis and periureteritis are very rarely observed without coincident inflammations of the bladder or the kidney pelvis or both.

Israel has reported one or two cases of what seems to be primary ureteritis. White, Stern and Viertel (Allgemein. Med. Centralztng, 1898) speak of pseudomembranous ureteritis, in which cast-like masses, several centimetres long, were passed from the ureters. Another form of ureteritis which is rare, and the cause of which is still unexplained, is a chronic interstitial ureteritis, described by Schede, in which the ureter is gradually obliterated by the inflammatory process.

Periureteritis is an inflammation of the cellular tissue surrounding the ureter, and has been reported in a few cases, in some of which it was due to an impacted stone.

Tuberculosis of the ureter is probably never primary. Israel, however, has reported a case of stricture of the ureter in a girl 20 years old, in which, on microscopical examination, a tuberculous focus was found, although the bladder and the kidney were intact. Tuberculosis of the ureter is due, either to a descending or an ascending process of infection. The diseased ureter is thickened and its orifice may be swollen or edematous, or else ulcerated. The outline of the orifice is irregular and the catheter enters with difficulty, owing to the thickened mucous membrane and to the presence of kinks or strictures. In order to make the diagnosis certain, tubercle bacilli must be found in the urine. The treatment, when directed to the bladder alone in such cases, is naturally without avail.

Tumors of the ureters occur extremely rarely as primary affections. The few cases that have been reported were papillomas or sarcomas, which were primarily derived from the pelvis. Schede, however, has reported a large primary sarcoma of the upper part of the ureter, while Neelson and Jona record cases of ureteral epithelioma. When they are present, ureteral tumors may usually, therefore, be regarded as extensions from similar growths in the kidney. These growths are difficult to recognize, even with the ureteral catheter. The dominant feature is usually a hydronephrosis, or as Israel points out, an intermittent hematonephrosis, that is an intermittent swelling, retention of urine and hematuria. When the ureteral catheter is able to dislodge fragments of tumor, which may be washed out into the urine, the presence of a papilloma may be detected by microscopical examination. In some instances, the

presence of abnormal groups of epithelial cells points with other signs to the possible presence of carcinoma.

Ureteral calculi are either derived from the kidney, and are then known as secondary ureteral stones, or else are formed in the ureter itself, when they are known as primary stones. The latter are rare and consist chiefly of phosphates. When a stone is arrested in the ureter, it is generally lodged in two or three positions. Of these, the most common are immediately at the beginning of the ureter, close to the pelvis of the kidney, and below, at the mouth of the ureter, just above the bladder. A third position, according to Israel, is at the junction of the lumbar and pelvic portions of the ureter. Stones may, however, be arrested in any part of the ureter, when there are injuries or inflammatory conditions causing obstruction.

The complete obstruction of the ureter by stone is characterized by an attack of renal colic and more or less complete anuria. When the obstruction is incomplete, there may be no symptoms, and a calculus may be impacted for years without giving any clew to the diagnosis. The walls of the ureter may dilate above and around the stone and urine may continue to be secreted; or else, there may be more or less blocking of the urinary outflow and hydronephrosis may gradually develop. Infection may follow and a pyonephrosis may be the result; while some sudden jar or accidental jamming of the stone may produce acute symptoms which lead to the diagnosis.

In speaking of the diagnosis of ureteral calculus, a few words must be said first of other clinical features that aid in detecting this condition, aside from ureteral catheterization. The latter cannot be applied during the acute and agonizing attacks of ureteral colic, which are the result of the movements of the stone. Renal and ureteral colic present a characteristic clinical picture. There is sudden and sharp pain, cramp like in nature, and referred to the side corresponding to the affected ureter. The pain may be referred to the groin, the back or the abdomen, and as a rule shoots downward along the ureter toward the neck of the bladder, then into the urethra, to the very end of the penis, or into the scrotum or testicles. The pain may be continuous or it may occur intermittently, in frequent or repeated exacerbations. There may be vomiting and the patient may lose control both of his bladder and rectum. There

may be frequency of urination or retention of urine, according to the conditions of the obstruction.

The examination of the urine under the microscope in cases of ureteral stones will usually show, during or soon after the colicky attacks, more or less red blood cells, epithelia from the pelvis and ureter and a trace of albumin. When there is pyelitis or pyelonephritis coexisting—and this frequently happens—there is a considerable quantity of pus and there are many bacteria in the urine in addition to the other elements mentioned. Crystalline masses, or an amorphous deposit of phosphates or urates are met with in the sediment in some cases, thus suggesting the nature of the stone.

When the calculus is finally passed through the ureter and enters the bladder, there is a complete and sudden cessation of the pain and a diminution of the bleeding, if any was present. In making the diagnosis of renal and ureteral colic, a number of conditions must be differentiated.

In *intestinal colic*, the pain and tenderness on palpation are diffused widely over the abdomen; the intestines are usually distended with gas and there are other symptoms of gastro-intestinal involvement. When the *appendix* is the seat of the trouble, there are no changes in the urine and the tenderness is more definitely localized. In *gallstones*, the pain is epigastric, and if there are any changes in the urine, the presence of biliary pigments is shown. In *spermatic colic*, an examination by rectum will demonstrate marked tenderness of the seminal vesicles.

Thus it will be seen that, while other conditions may simulate the symptoms of a passing stone, yet enough clinical signs are positive in all these conditions to establish a true diagnosis in almost every case.

Occasionally, one can detect the location of the stone by the presence of a quite definitely circumscribed seat of tenderness along the canal. Very rarely a stone can be felt in the ureter by direct palpation. For this, the ureteral stone must be of considerable size. In women, stones located in the lower part of the ureter have been made out by vaginal palpation. In men, such stones have been felt by rectal palpation with counterpressure with a stone searcher in the bladder.

The Roentgen rays do not always give very positive results, in cases of calculi in the ureters, but with the improvements in the technique, which have lately been introduced, the results may be expected to be continuously better.

In a few cases, in which the ureteral stone was at the very mouth of the ureter, it was actually seen protruding from this mouth or distending it, through the direct or indirect cystoscope. When the stone has been in the lower part of the ureter for some time, the vesical orifice may be seen to be distorted or edematous.

The most important means of diagnosing calculi in the ureter is the ureteral catheter. This may be either plain or wax tipped. The latter catheters are useful inasmuch as the rough markings of the stone make an impression upon the wax, which are seen when the catheter is removed. The catheter quickly detects the presence of obstruction and of a hard and unyielding object in the course of the ureter. A special apparatus has been devised also for transmitting through the ureter the sound of the click which is produced when the tip of the catheter touches a hard object such as a stone.

The limits of this paper do not allow me to consider more in detail the various diseases of the ureters and their diagnosis. Contenting myself with the above brief sketch, I now pass on to the history of one of my cases, which, I think, presents a number of interesting points and sheds no little light upon cases of similar character, in which, as in this case, the symptoms were obscure and diagnosis could not have been made nor the proper treatment applied without ureteral catheterization.

Mrs. P.—, age 35, was married 15 years. She has two children, 13 and 14 years of age. She has had two miscarriages, the last one ten years ago. Her family history is negative. Her father died at the age of 52, of pneumonia, and her mother at 48, of typhoid fever. She is one of a family of nine children, all of whom are living and well. Her illness began with the birth of her children. Since that time she received local treatment, up to nine years ago, when perineorrhaphy was performed, which procedure gave some relief. Catamenia were normal up to the last few years, when she had a great deal of backache and bearing-down pain, with marked and constant leucorrhea, causing extreme irritation. Urination was

frequent, especially at night, with pain at the end of the act. The bowels were regular and her appetite was good. She was extremely nervous. Dr. W. Burton Thorning, of Winchenden, Mass., was consulted in February, 1902. At this time, she complained of bladder trouble, which was persistent in character, although treatment was given for it. In April, after several months' treatment, with little or no relief, she was examined. The patient was found to have a lacerated perineum and a prolapsed uterus. An operation was advised, and the patient was referred to Dr. W. H. Baker, of Boston, Mass.

The vaginal examination then made showed the uterus retroverted, with adhesions. The perineum was deficient on the left side.

March 31st. Ventral suspension and left perineorrhaphy were performed.

April 22nd. The patient was discharged, cured of the uterine troubles.

Jan. 3, 1903. A cystoscopic examination by Dr. Baker revealed a slight congestion of the vessels on the surface of the bladder. There were three or four small elevated portions of membrane having the appearance of papillæ (enlarged) at the vesical neck, and one like a carbuncle at the meatus. A spray of silver nitrate was used.

Oct. 29, 1904. An examination showed great tenderness on right side of pelvis.

Nov. 16, 1904. A laparotomy was performed. Both utero-sacral ligaments were found very tight. These were cut and appendectomy was performed. A pathological examination showed chronic appendicitis.

Dec. 8. The patient was discharged. All measures failed to relieve the bladder trouble which had grown steadily worse.

Dr. Thorning considered the case to be one of chronic cystitis, and in addition, there was present a peculiar, burning stinging pain, constant in character, and apparently corresponding to an exquisitely sensitive area, at or near the trigonum. The urine showed abundant pus cells, broken down epithelia, many blood cells, and a few hyaline casts. The diagnosis was chronic ulcerative cystitis. Treatment, local and general, was given. In three or four months she was improved, with the exception of the pain and soreness. Dr.

Thorning then discovered that the point of tenderness was situated more posteriorly, and appeared to be the right ureter, which was enlarged to the size of a lead pencil, and as hard. The patient was sent to Dr. H. for examination, who concurred in the diagnosis.

In November, 1904, she again consulted Dr. Baker, and the operation mentioned was performed.

The writer is indebted to Drs. Baker and Thorning for the notes concerning the case, and also for their kindness in referring the patient to him.

December, 1904. A cystoscopic examination was made. The bladder was congested, markedly so about the neck. The right ureter was swollen at the opening, and was reddened and irregular in its outline. The opening was very small, and only a very small and sharp-pointed catheter could be passed at all, and then only for a short distance, as obstructions were met and the passage of the catheter was extremely painful. The urine at this time proved the existence of lithemia, chronic catarrhal pyelonephritis and chronic catarrhal cystitis.

After a few attempts, the kinks or obstructions in the right ureter were overcome and the catheter could be passed to the pelvis of the kidney.

ANALYSIS OF THE SEPARATE URINES:

Right:	Crystals of uric acid gravel	few
	Red blood corpuscles	small numbers
	Pus corpuscles with fat globules	few
	Epithelia from convoluted tubules	few
	Epithelia from pelvis and ureter	few
	Granular casts	few
Left:	Crystals of uric acid	few
	Granules of urate of soda	moderate numbers
	Crystals of oxalate of lime	few
	Red blood corpuscles	few
	Epithelia from convoluted tubules, pelvis and ureter	few

Lavage of the kidneys with warm antiseptic and healing agents began to give relief almost immediately. In the interim of cystos-

copic examinations, the bladder was washed out by her family physician, and tonic internal remedies used.

At each lavage, when the pelvis was washed out, the catheter was, from time to time, withdrawn, and as much fluid injected into the right ureter as the patient could maintain without pain. This *modus operandi* seemed to eliminate the kinks or adhesions to a marked degree. The pains grew milder and milder in character, and finally stopped. The left kidney received only a few treatments.

In all, there were some twenty-six treatments, at longer and longer intervals.

In June, 1907, the urines of both kidneys were normal in character, and as all painful or disagreeable symptoms had disappeared, the patient was discharged. Since that time, no local treatment has been demanded.

This case, to my mind, appears to hold a certain interest, first owing to the difficulty of a correct diagnosis, and second, because of the entire alleviation of the symptoms as the result of lavage, given in the manner described. The writer has notes of three other cases of a like character, but as the methods used were identical and as the good results were just as marked in the other two cases, it seems needless to note them here in detail.

The dominant suggestion from the study of these cases is that when a patient presents herself with a history and a localization of pain similar to those described, and when ordinary methods of treatment fail, it becomes our duty always to make a most thorough cystoscopic examination and to ascertain the exact condition of the ureters and kidneys.

It is probable that ureteral lesions and pelvic inflammations are far more common than we have hitherto supposed, and that a more frequent employment of the cystoscope and the ureteral catheter would reveal the existence of just such conditions as have been described in the case reported in detail and the three other cases mentioned.

In closing, the writer takes occasion to express the hope that the medical profession in the future may pay more marked attention to diseases and abnormalities of the ureters.

ON THE DIFFERENTIAL DIAGNOSIS OF THE ULCERATIVE FORMS OF CUTANEOUS SYPHILIS AND TUBERCULOSIS.

By A. RAVOGLI,
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Ulcerative forms of the skin, although entirely different in their causes and origin have, nevertheless, great similarity among themselves. The necrobiotic process, which the masses of infiltrating elements undergo, is exactly the same process in all ulcers and for this they look very much alike. It so happens, that broken down syphilitic superficial gummata, and broken down tubercular cutaneous nodules resemble each other so much that in many cases a differential diagnosis offers great difficulty.

The nodules constituting a lupous area, and the syphilitic nodules, superficial gummata, which make their appearance at an advanced secondary period, or at the tertiary period, have both of them a tendency to group together, forming round or semi-circular patches. In their clinical appearance and disposition they have great resemblance to one another and for this reason such ulcers must be studied carefully in order to be able to distinguish one affection from the other.

In both cases the disease is the result of a localized infection in the skin; in syphilis it is due to the localization of the treponema, and in tuberculosis to the presence of the tubercle bacillus in the structure of the derma.

It seems a priori, that the differential diagnosis of the two ulcerative forms can be made by their pathological study, and determined by microscopical examination. Yet this is not conclusive.

The pathological structure of lupous nodules and that of syphilitic gumma, as has been said, greatly resemble each other, for masses of small mononuclear leucocytes constitute the infiltration forming the tubercular nodules as well as the syphilitic nodule. In both affections giant cells are present, and those giant cells, which in the past have been considered as characteristic of the tubercular nodule are today known to be of no importance for establishing a diagnosis.

The presence of the tubercle bacillus and that of the treponema do not, as yet, make the diagnosis plain. In the tubercular affection of the skin of the lupoid type it is very difficult to be able to demonstrate the presence of the bacillus. It is possible that the bacillus has changed its biological conditions, it has assumed flagelli, and that, with our means of staining cannot be easily demonstrated. In the same way the treponema which is so easily demonstrated in the tissues of the primary lesion, in the glands, in the blood, and in the lesions of the secondary period, in the hereditary luetic forms, cannot, or at least can only with extreme difficulty, be demonstrated in the tertiary lesions. Indeed, Schaudinn¹, after having found the spirochaeta pallida constantly in 70 cases of secondary syphilis never found it in the lesions of tertiary syphilis, so for this reason he came to the conclusion that the spirochaeta had very likely changed its condition and was present in a different and not known form. The products of the tertiary syphilis, although considered incapable of inoculating syphilis, have yet been referred to by Delbanco and others, as having caused inoculation of syphilis from ulcerated gummata. Hoffmann² claimed to have successfully inoculated syphilis in an ape by applying on the scarified skin pieces of ulcerated products taken from a syphilitic suffering with tertiary lues.

Yet all this interesting knowledge will not sufficiently enlighten the practitioner, who needs some clear and definite characteristics on which to base his diagnosis.

Before the discovery of the tubercle bacillus the question lay between lupus scrofulosus and lupus syphiliticus, but today these varieties of lupus are differently designated, and there remain lupus vulgaris as an exponent of tuberculosis of the skin, and ulcerated dermal gummata as an exponent of syphilis.

The diagnosis has to be made between the two affections from their external characters. Lupus vulgaris and superficial syphilitic gummata begin usually in the form of small brownish-red nodules of the size of a lentil, imbedded in the derma, both have a tendency to take a circinate disposition, and gradually break down and ulcer-

¹ Schaudinn. Deutsch. Med. Wochschr. No. 42, 1905.

² Hoffmann. E. Mitteilungen und Demonstrationen über experimentelle Syphilis. Derm. Zeitschr., 1906, p. 561. Bd. XIII.

ate. Consequently the resemblance of these two diseases, which are entirely different in their cause, may in many cases be the source of an indefinite diagnosis. We will take as an example the two affections as they are often found on the nose and on the upper lip, which are the regions frequently preferred by both diseases.

In a general way we can say that lupus begins in childhood or at least in early youth, but it may, also rarely, commence after puberty. It takes a slow course. It begins in small foci, with a tendency to group. The lupous nodules often break down and ulcerate, forming deep ulcers, covered with thick yellow crusts, which seem to be deeply imbedded in the tissues. In almost every case the ulcerated nodules of lupus, when healing up, leave a bulky, thick and irregular cicatrix.

On the healing surface and even on the scar, new lupous nodules are often added, so much so that while in one place lupus is apparently healing, in others there are new infiltrated nodules, and still others are disintegrated and ulcerating.

Lupus continues its slow work of destruction inexorably; spontaneous recovery from lupus is a thing that as far as our knowledge goes, does not exist. We have already had occasion to describe the sad consequences of lupus of the ear of some years' standing, where cartilages, muscles, bones, all underwent destruction from lupus. The localization of the true lupus is usually in the skin, the mucous membranes are attacked usually by continuity or contiguity of the principal foci of lupus. But it cannot be denied that the mucous membrane may also be primarily affected.

The manifestations of late syphilis as dermal gummata, make their appearance late in life, and the difference in the age is to be taken into consideration for a differential diagnosis. The time of the existence of the process is also of great importance. Although the destructive action of syphilis is slow, yet it is more rapid than lupus, so much so that the same amount of destruction that will be wrought by lupus in several years will be brought about by syphilis in a few months.

The infiltration in syphilis is usually defined, and forms extensive ulcerations. The cicatrices due to the syphilitic process are rather smooth and thin, while in lupus the scars are thick and bulky.

It must, however, be kept in mind that a tubercular process may supervene on a syphilitic ulcerative process. In this case we have a hybrid form of extensive destruction, affecting mostly the genital organs with disastrous results for the life of the patient.

It is generally stated that lupus attacks the cartilages of the nose, while syphilis affects the bones. In case of a gumma the bony septum will be found perforated, the destruction will often extend to the cribriform plate of the ethmoid, with the resulting sinking in of the nose. In lupus the nose also has the cartilages destroyed, yet the bones still hold the shape of the nose.

An examination of the body will help us to establish a differential diagnosis between tuberculide and syphilide. In the case of acquired syphilis we will often find dischromies leucoderma, as proof of past syphilitic eruptions. The condition of the glands and the alopecia will often reveal a past luetic condition. In the same way for the inherited lues, the teeth, the cornea, the general surface of the skin showing superficial scars may all give some clue for the diagnosis.

Although the old sign *a juvantibus et laedentibus* has been to-day nearly cast aside, yet from our experience we find that in many doubtful cases it is of good service. The application of Emplastr. Hydrargyr. on the suspicious ulcerative process, together with the internal administration of potass. iodide, will soon show its beneficial effect on a syphilitic ulcerative gumma, while it will be of none or of very little use in lupus. The results, however, have to be taken *cum grano salis*, because we have found cases of destruction of the nose, with ulcerated gummata of the superior maxillary bone, without doubt of syphilitic origin, which have not responded so easily to the application of the antisyphilitic remedies.

Miliary tuberculosis of the skin is usually of rare occurrence yet it can for awhile call forth a wrong diagnosis. Its process is rather a rapid one and in a short time ulceration is present to such an extent that we have little opportunity to see this affection in its beginning. The ulcers usually are in the vicinity of the mucous membranes, near the mouth, or near the rectum, from where the tubercle bacilli have come with the secretions and have infected the skin. The resulting ulcer is flat, on a pale pink or yellow-red surface, with nibbled borders. In its surface miliary nodules can be

seen, and in the centre small loculi on the ulcer, which recall the falling off of the tubercular nodules. The surrounding skin is red and inflamed, but still shows no deep infiltration. These secondary tubercular ulcers are usually accompanied by great pain. They secrete profusely and in a few cases we have had under observation, we could find by means of smear preparations the presence of tubercle bacilli. The general condition of the patient affected with cutaneous miliary tuberculosis is absolutely bad, he is usually affected with pulmonary tuberculosis, and his system is badly run down. These ulcers are the result of the inoculation of the bacilli, which are found in the expectoration, if near the mouth, or in the intestinal excretions in the case of tuberculosis of these organs.

The diagnosis in these cases is easily made because the general system affected with tuberculosis, reveals the nature of the ulcers.

At the conclusion of these few diagnostic sketches it will be useful to call to mind that syphilis and tuberculosis often occur together. One has a great influence over the other. There is no doubt that the poisonous and weakening action of the syphilitic virus on the system is responsible for arousing the tubercle bacillus latent in the system. In our experience we have often met with young men who had never shown signs of tuberculosis, and yet when they have been infected with syphilis, they have soon manifested symptoms of galloping phthisis. Vice versa, in an individual affected with tuberculosis, having a poor systemic reaction, syphilis is usually uncontrollable. In these cases we find the ravages of malignant syphilis, which with the best of treatment can hardly be checked. This shows that the two infectious diseases, entirely different in their causation, have a remarkable influence on each other to the detriment of the infected organism.

THE DIAGNOSIS OF CHRONIC INFLAMMATION OF
THE NASAL ACCESSORY SINUSES.

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While many cases of chronic inflammation of the nasal accessory sinuses are characterized by well-defined symptoms which unmistakably point to the particular sinus affected yet the reverse is the case in a not inconsiderable proportion and the diagnosis of the nasal affection is attended with much difficulty. Undoubtedly, chronic affections of the various sinuses are much more frequent than is generally supposed and as a result of the obscure symptoms in some instances, or the entire absence of symptoms directing attention to a sinusitis, many cases of so called nasal catarrh and especially postnasal discharges, are unrecognized cases of ethmoidal, or sphenoidal disease.

In the adult with but few exceptions, it will be found on careful examination, that practically all cases of prolonged, purulent discharge from the nasal chambers, means disease of one or more of the accessory sinuses. Along the same lines, many nasal affections possibly attended with little or no discharge and resisting treatment, will, if carefully studied, show well marked sinusitis as the underlying basic factor and especially is this the case in many instances of atrophic rhinitis which continue to present marked crusting and ozena, despite careful treatment, when in a not inconsiderable number of patients, the adoption of careful diagnostic measures will reveal that this condition is a symptom and not the essential pathologic element.

On account of the marked variations in the size and configuration of the sinuses in almost every individual, so that it is almost impossible to designate a normal standard for comparison, the atypical sinus stands as a marked factor in rendering more difficult the recognition of a sinus affection in a considerable number of cases and, therefore, every available measure must be adopted to recognize these obscure cases, in order that prompt and efficient

treatment may be instituted. As a further factor in enhancing the frequency of sinusitis and especially in conjunction with apparently trivial nasal disorders, is the rather feeble resistance to inflammatory changes presented by the mucous membrane, while the intimate relation of the trifacial nerve with all the sinuses, explains the somewhat irregular symptoms in many cases

It is essential in considering sinusitis from a diagnostic aspect, that the particular space, or spaces involved, should be accurately localized, or rational treatment necessarily cannot be inaugurated and after any particular sinus has been recognized as being the seat of the chronic inflammation, it becomes imperative that any affection of the other sinuses should be excluded. While most commonly this affection is unilateral in its involvement, yet not infrequently both sides are involved and especially so as regards the ethmoid structures, so that with a purulent discharge posteriorly into the nasopharynx, one must carefully search by all available means, for its source in both nasal chambers and not be satisfied with finding a frank sinusitis on but one side. In some cases, the direction of the flow of the discharge from the affected sinus, if sufficient purulent secretion is being eliminated, will at least give a clue to the group of sinuses involved, as the discharge from the maxillary antrum, the frontal sinus and anterior group of ethmoidal cells, flows anteriorly from the nasal chambers, while the secretion from the posterior ethmoidal cells and the sphenoidal sinus, appears in the choanæ and nasopharynx. This feature presents no definite diagnostic value, being merely suggestive, and it becomes necessary to carefully study the individual sinuses and as far as possible, indicate particular features that will enable one to satisfactorily determine the exact structures involved in the morbid process.

When the maxillary antrum is the seat of a sinusitis, it will usually be found after removing all purulent discharge that may be free in the nasal chambers, pus will be seen to flow from beneath the middle turbinal in the region of the hiatus semilunaris, if the patient be instructed to bend well forward, so that he places his head as low down as he possibly can while in a sitting posture; or the same result may be obtained by having him lie down for a few moments on the unaffected side, when examination of the nasal chamber will reveal the presence

of more or less pus at this site. It must be remembered, however, that the purulent discharge from a frontal sinusitis, will appear in the same locality and may thus be emptying into the antrum, the former being the real basis of the pathologic changes, while the antrum is merely acting as a receptacle for the discharge.

A unilateral nasal discharge should always be considered as suspicious of accessory sinus disease; there is more or less subjective odor and a bad taste, while not infrequently, the discharge is periodic in character, entirely disappearing for a time, to again prove annoying within a short time. All the symptoms become aggravated when the fluid is retained in the antrum and the dull uncomfortable sensation over the cheek which is so frequently present, becomes a severe facial neuralgia with great suffering, until the discharge again appears and then relief takes place. Usually, however, such cases present but little, or no diagnostic difficulty, while in others, the affection is more latent in character and the chief complaint of the patient will be that during sleep he has a purulent discharge into the nasopharynx. The local pain is often absent, or there may be only a dull ache at times referred to the cheek, or most often to the teeth, while rather infrequently, pain may be referred to the frontal, or supraorbital regions on the same side as the sinusitis. Tenderness on tapping the cheek or the teeth may not infrequently be elicited and, when present, is of suggestive diagnostic value, as is also a feeling of fullness, or sense of pressure beneath the orbit, while mastication may be slightly painful in some cases and the teeth on the suspected side will feel sensitive.

The most positive and satisfactory diagnostic procedure, however, is by washing out the antrum through the natural, or accessory opening, should such be available, and thus obtaining the information desired from the character of the returned fluid, or if one cannot obtain access to the sinus in this way, a puncture through the outer wall of the inferior meatus and the introduction of a canula, will solve the problem. Transillumination if positive, will sometimes prove of much confirmatory value and especially if the light reflex is obscured through the orbit, or nasal wall, but alone, it cannot be depended on and other evidence of more positive value must be obtained in conjunction. The employment

of the X-ray for diagnostic purposes is also of great value and in many obscure cases where one cannot obtain satisfactory evidence of a suspected sinusitis here, the study of a carefully made Roentgen plate will prove of most positive value, particularly in showing a thickened condition of the lining antral mucosa.

In chronic affections of the ethmoid cells, the upright position favors the discharge of any pathologic secretions present. The discharge of a tenacious mucopus especially into the nasopharynx, is usually complained of when the secretion is free. More frequently, however, examination shows that a portion of the purulent material has become inspissated and produces crust formation on the middle turbinal, the location of such crusts in a manner, indicating the particular group of cell spaces involved. Usually a diagnostic feature of importance is the unilateral engorgement of the middle turbinal, not infrequently jammed against the septum. With these conditions present, it will usually be found on further examination, that while the patient not infrequently complains of a unilateral nasal stenosis and a postnasal discharge, the conditions present unmistakably reveal more or less serious ethmoid disease. While often, the symptoms are those of a purulent rhinitis without localizing symptoms, but in such cases exuberant granulation tissue and polypi are usually present and not infrequently, careful probing in this region will reveal the presence of caries, or necrosis.

Suggestive as regards its diagnostic importance only, is the location of the purulent discharge after the nasal chamber has been cleansed, as from the anterior group of cells it will generally be found coming from beneath the anterior half of the middle turbinal, while if the posterior group be involved, the discharge escapes posteriorly in the superior meatus and with this latter condition present especially if the discharge be at all profuse, it collects in the nasopharynx during sleep and is apt to produce nausea upon arising in the morning and possibly vomiting from the violent efforts made by the patient to rid himself of the tenacious discharge and crusts. Impairment of olfaction, or even complete loss of the ability to perceive odors, occurs more frequently here than with other sinus affections, on account of the involvement of the olfactory cleft, and when this symptom is present with a purulent nasal

discharge it is highly probable that the posterior group of ethmoidal cells are involved in the chronic inflammation.

Pain is not a characteristic diagnostic feature, as it is ill defined and can rarely be localized with any degree of accuracy, but when present it is deeply seated in the region posterior to the orbit, or eye ball, or it may at times involve the temporal region. When there is retention of pus in some of the cells, the pain is increased, but in such cases the eye symptoms are more characteristic and may be the only condition of which the patient complains, the nasal affection being entirely unnoticed. The eye ball may be congested and the lids oedematous, with interference with mobility in extreme instances. Diplopia or partial blindness may result from ethmoidal or sphenoidal disease, while in unrecognized, or neglected cases, an orbital abscess may form with exophthalmus and appears as a smooth, gradually increasing tumor at the inner angle of the orbit. In all such opthalmic conditions, disease of the ethmoidal cells should be suspected, but at the same time, these cells are frequently involved in conjunction with other sinuses and this factor must always be borne in mind in making the differential diagnosis.

As in ethmoiditis, so also in chronic sphenoidal sinusitis, does the upright position favor the discharge of pus and when this latter sinus is involved, the discharge invariably manifests itself as a post-nasal catarrh, this often being the only symptom of the affection. On account of the paucity of symptoms, sphenoidal disease is more difficult to diagnose than other sinus affections and in the presence of a variable discharge as regards consistency, from the upper and posterior portion of the nasal chambers, the disease may be suspected, but actual evidence of its existence will only be obtained by probing or enlargement of the normal opening and the discovery of pus in the interior of the sinus.

No subjective symptom is especially characteristic of chronic sphenoidal sinusitis and in nearly every case the diagnosis presents considerable difficulty on account of the obscurity of the symptom-complex. The location of the pain may however, at times, be very suggestive of a collection of pus in this region and especially so when the patient refers it to the occipital region, but most frequently it is variable both in character and site and may be only evinced as a dull, diffuse, slightly annoying headache, or again when

there is obstruction to the outlet and retention of pus takes place with exacerbation of all the symptoms, it may be clearly localized and sharply neuralgic in character. Occasionally a diagnostic symptom of considerable importance in at least suggesting this sinus as the seat of the trouble, will be the presence of more or less severe neuralgic pain referred along the distribution of the fifth nerve on the same side of the head as the sphenoidal inflammation, and this symptom carries still greater weight, if the pain be remitting; the periods of diminution being accompanied by increased nasopharyngeal secretion.

The involvement of the eye ball, or orbital cavity, is also suggestive of sphenoidal sinusitis and especially so if the posterior ethmoidal cells are conjointly involved in the chronic inflammation. From these lesions, orbital abscess with exophthalmus may occur from pus retention and ptosis, strabismus, narrowing of the visual field, or as has been reported the sudden development of blindness, are also highly significant indications of serious affections in this region

Finally, the diagnosis of chronic frontal sinusitis, is usually not attended with great difficulty, although a considerable number of cases are observed in which the symptoms are so obscure, that great difficulty will be found in recognising the exact seat of the nasal symptom-complex. In the majority of cases, the localization of dull pain over the region of the sinus, is so self-evident of the condition present, that the mere history of such requires no further diagnostic factors. But there may be but slight discomfort from time to time over the supraorbital region on one side, or if drainage is free, not even this will be complained of and the diagnosis of the cause of the purulent nasal discharge of which the patient complains, must be based on other evidence. Again where drainage is from time to time obstructed, severe frontal headache, or neuralgic pains may be experienced. The periodic character of the pain is of considerable diagnostic importance, as exacerbations occur at more or less frequent intervals and if in conjunction with this symptom, there is pain on pressure over the sinus, the diagnosis becomes practically assured.

Reflex disturbances of the eye should always suggest careful examination of the frontal sinuses, as should also a persistent

supraorbital neuralgia especially if associated with ocular symptoms of any nature. While in a few neglected cases, where there is complete obstruction to the discharge, the pressure on the roof of the orbit may be so great, as to crowd it downwards with consequent displacement of the eye ball and more, or less diplopia; this being undoubted evidence of pathological change in the frontal sinus.

While not characteristic, yet the appearance of the nasal chamber on the affected side may aid in the diagnosis of the condition, as the soft tissues about the infundibulum are swollen and inflamed, while not infrequently a small amount of pus is found here which, if traced to its source by careful cleansing, inclining the head well forward and then again making an examination to locate the source from which the discharge springs, will greatly aid in making a diagnosis. In all instances, however, careful probing of the frontal sinus and if possible to introduce a small and properly curved canula into the sinus, must be employed to make the diagnosis absolutely certain.

Transillumination may aid in the diagnosis, but not infrequently it is in just such obscure cases that it fails, but as with the same procedure in affections of the maxillary sinus, it may prove of undoubted suggestive value in a considerable number of cases. The employment of the Xray here for diagnostic purposes has a definite and positive value and the study of carefully made plates will often give accurate information in regard to the frontal sinus that can be obtained in no other way, not only concerning the pathological changes present, but also the dimensions of the sinus, the presence of bony septa within the sinus, the existence of an orbital recess and other details which will prove of invaluable aid in operative treatment.

General Retrospects.

THE DIAGNOSIS AND PROGNOSIS OF EPILEPSY BASED ON THE LITERATURE OF 1907.

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A prolific literature upon the subject of epilepsy during 1907 reveals but little, comparatively, that can be called new concerning particularly the diagnosis and prognosis of that complex disorder. All writers emphasize the fundamental distinction between the genuine or idiopathic epilepsy described by Hippocrates and Galen, and the unilateral or partial, cortical epilepsy, studied and described particularly by Jackson. It is to the credit of Scheiber to have systematically arranged the characteristic symptoms of these two principal forms of epilepsy. According to him genuine epilepsy is always the result of pathological changes affecting the entire brain, while in the Jacksonian form only a circumscribed area is affected. In contradistinction to the opinion hitherto held Bychowski maintains that stimulation, artificial or pathological, of the posterior as well as the anterior cerebral convolutions may provoke epileptic convulsions. A case observed by him in which trephining was performed, furnished positive evidence of this. He further says that in typical cases certainly, error in diagnosis can be avoided if the complex of symptoms be considered with particular consideration of the following points differentiating the two principal forms of the disease. In genuine or idiopathic epilepsy not only the skeletal or corporal muscles—the voluntary ones, but also the “smooth,” involuntary muscles (bladder, rectum) are affected; in the Jacksonian or cortical form the corporal or voluntary muscles only are in con-

vulsion. The convulsions in genuine epilepsy are of the tonic type while in Jacksonian they are clonic. In genuine epilepsy both sides of the body are simultaneously convulsed while in Jacksonian the seizure invariably begins on one side and as a rule remains limited to that side. In the cortical form likewise, the affected muscles are never entirely involved at once, but are successively seized and in accord with the anatomical arrangement of their centers of functional control in the motor area of the brain.

The importance and significance of the condition of consciousness are emphasized by the contributions of *Audenino* and *Siemerling*. In genuine epilepsy consciousness is immediately abolished and returns gradually, following a comatose state, and long in most cases after convulsions have ceased; in Jacksonian epilepsy consciousness is never abolished at the beginning of the attack, but only when the other side of the body becomes involved and returns at once when the attack has ceased. In spite of these apparently radically different manifestations, in atypical cases, in the so-called equivalents, confusion of the forms is possible. *Bernhardt* emphasizes the difficulties of differential diagnosis between genuine *status hemi-epilepticus* and the Jacksonian.

Pappenheim emphasizes the importance of the toxic element in epilepsy, and according to him alcohol may produce pathological brain changes in circumscribed portions of the cortex. He describes a case of cortical epilepsy characterized by a remarkable deviation of the tongue and with alcohol as a direct cause. Similar pathological findings, *Köster* maintains, may also be induced by syphilis. His case did not differ in its symptoms from genuine epilepsy. However, the appearance of the convulsions not before the patient's thirtieth year and the freedom of the bladder from involvement excluded a diagnosis of genuine epilepsy.

Introducing the name "affective epilepsy," *Bratz* describes under it a condition in which mild attacks or equivalents were present from early youth, and disappeared with proper treatment, more particularly in the quiet and rest of sanitarium life; to return, however, even if this treatment were indefinitely continued, as soon as these patients were exposed to prolonged psychic excitement.

Under the name "Reflex" epilepsy *Frey* describes the variety in which on the basis of present predisposition lesions of the peripheral nerves, foreign bodies, hindrance to nasal respiration by enlargement of the laryngeal ring, polyps, etc., and congestions caused by their pressure, produce convulsions.

The importance of quantitative fixation of uric acid in the urine as aid to diagnosis and prognosis of epilepsy has been particularly shown by *Stadelmann*. The change of the amount of uric acid present at certain intervals is according to him a characteristic

sign of epilepsy. Frequently before the seizure the uric acid disappears entirely and its presence in the urine in so much greater amount is found after the attack. These findings are in accord with the statements of *Donath*, *Aiken* and *Munsow*, who assert a close relationship between epilepsy and the retention of certain products of metabolism. Although it cannot be positively determined which factors are primary causes, the body fluids, secretions and excretions of epileptic patients show in all cases a change in their composition. The conclusion is warranted, therefore, that the accumulation of abnormal ingredients in the blood, urine, perspiration and especially in the cerebro-spinal fluid, by its toxic effect, produces epileptic convulsions. According to *Munsow* the noxious products stimulate the vaso-motor nerves of the abdominal viscera; in consequence of this, hyperemia of the brain is produced and convulsions follow. Evidence of this *Munsow* finds in the favorable influence exerted by remedies stimulating metabolism by means of which the toxic elements are removed and by remedies that dilate the blood vessels.

As to the cerebro-spinal fluid, investigations of *Donath*, *Hughes* and *Cesari* can be thus summed up: Choline is a constant ingredient of cerebro-spinal fluid in all degenerative processes of the central nervous system and therefore is found also in epilepsy.

The anatomical diagnosis of epilepsy has been advanced by the contributions of *Alquier*, *Anfimoff* and *Marchand*, who refer to minute hemorrhages on the brain surface—probably in consequence of the hyperemia above mentioned—as a constant condition accompanying epilepsy. Experimental work in this and other directions has been advanced by *Prevost*, *Cesari*, *Donath* and *Zimmermann*. The latter could produce seizures by the application of even slight galvanic currents.

Early diagnosis of epilepsy is the subject upon which *Aschaffenburg*, *Stadelmann* and *Stites* have been engaged. The authors have been most careful in their work. *Stadelmann* particularly, describes according to an exact method, the physical and psychical signs of developing epilepsy. As a most important sign in infancy he points out the periodical change of irritability of the organism. These children incline to gastro-intestinal disorders, enuresis nocturna, laryngeal spasms, convulsions, irregular heart action, acceleration of pulse, rapid changes in the tonus of the blood vessels, vertigo, headache, gnashing of the teeth in sleep, fits of uncontrollable anger, brutalities, extreme obstinacy, lack of altruistic faculties, moral inferiority, caused by inability to properly combine perceptions and to compare them for the purpose of weighing motives. In the beginning, intellectual development may be of the best, but it gradually becomes narrowed, the mental faculties dimin-

ish perceptibly and the progressive association of ideas is wanting. The attention is relaxed and the phenomena of intense fatigue are observed under circumstances which would not produce fatigue in normal children. The quantitative fixation of uric acid in the urine may determine the time of the anticipated seizure.

Richardson and *Masoin* have studied the prognosis in epilepsy. The latter accords a certain degree of prognostic significance to the diazo-reaction. *Richardson* sees more favorable results in epilepsy as compared to earlier times by reason of rational therapy.

The research work of *Pierce Clark* and *E. W. Scripture* on the voice changes in epileptic subjects promises to be productive of interesting and important results. By means of the "air-puff" method used in *Scripture's* researches on phonetics for the Carnegie Institute, the authors have demonstrated a voice sign characteristic of epilepsy. In ordinary speech there is a rising and falling of the melody. Instead of the continual rise and fall in melody as in the normal voice, in the epileptic voice the words and phrases run along on even tones. The speech of the epileptic, in short, is of the so-called "plateau" type, i. e., the melody proceeds by even steps. There is further a tendency to monotony—that is, successive tones do not vary from each other as much as do normal tones. This speech variation from the normal can be temporarily changed and the defect removed. Relapses, however, soon occur. The authors claim there is no parallel defect in voice in any other form of mental or nervous affection. Patients entirely free from bromide influence and both acute and chronic cases were studied. It was universally present in all types of epilepsy including petit mal. The authors believe the defect dependent upon the psycho-motor degeneration peculiar to all forms of epilepsy and found in no other form of mental or nervous disease. The diagnostic value of this sign as also its forensic importance is obvious. Certainly further studies will doubtless cast light upon the constancy of this voice change.

PROGRESS OF HEMATOLOGICAL DIAGNOSIS AND PROGNOSIS IN 1907.

By WILHELM MUELLER,
New York.

LITERATURE.

ARNDT: Haemolytische Untersuchungen, insbesondere bei Staphylokokkenkrankungen. (Deut. med. Wochenschr., 1907, No. 14.)
ARNETH's Erwiderung auf Paulicek's Kritik seiner Methode. (F. H., 1907, Heft 5.)

- ARRHENIUS: Ueber die physikalische Absorption hinsichtlich der Verankerung der Ambozeptoren. (F. H., 1907, Heft 4.)
- CESARIS-DEHMEL: Studien über die rothen Blutkörperchen mit den Methoden der Färbung in frischem Zustande. (F. H., 1907, Suppl. I.)
- COMESATTI: Ueber die sudanophilen Leukozyten des Blutes im Verlaufe von Infektionskrankheiten. (F. H., 1907, Heft 4.)
- DE DAVIS: Hemophilic bacilli—their morphology and relation to respiratory pigments. (Jour. infect. dis., 1907, p. 73 &c.)
- GHEDINI: Der Nachweis des Pfeiffer'schen Bazillus im Blute und in der Milz bei Influenza. (Zentralbl. f. Bakt., 1907, Heft 4.)
- JESSUP: A case of pernicious anaemia with sudden increase of megaloblasts followed by a remarkable improvement. (Col. Univ., Path. Inst., 1907.)
- LEHNDORFF and ZAK: Ein Fall von myeloider Leukämie im Greisenalter. (F. H., 1907, Heft 5.)
- LUKSCH: Ueber den Blutbefund bei Fleckfieber. (F. H., 1907, Heft 4.)
- MAUWARING: On the application of physical chemistry to hemolytic serum. (Zentralbl. f. Bakt., Bd. 43, Heft 7.)
- PAPPENHEIM: Ueber die Stellung der akuten grosszellig lymphocytären Leukämie im nosologischen System der Leukämien und die Bedeutung der grossen Lymphocyten Ehrlichs an und für sich und für die Pathologie dieser Erkrankung. (F. H., 1907, Heft 1-4.)
- PAPPENHEIM: Unsere derzeitigen Anschauungen über Natur, Herkunft und Abstammung der Plasmazellen und über die Entwicklung der Plasmazellenfrage. (F. H., 1907, Heft 5.)
- PAULICEK: Zur qualitativen Blutuntersuchung nach der von Arneth angegebenen Methode. (F. H., 1907, Heft 6.)
- ROOSEN-RUNGE: Ueber die Verwendung des Natr. glycochol. für Blutuntersuchungen bei Typhuskranken. (Zentralbl. f. Bakt., 1907, Heft 5.)
- RUBINATO: Sur la valeur des recherches hématologiques dans le diagnostic des cirrhoses hépatiques et sur l'importance de l'augmentation des Mastzellen. (F. H., 1907, Heft 2.)
- SCHLESINGER & HOLST: Die Benzidinprobe für den Nachweis minimaler Blutungen aus den Verdauungs- und Harnorganen. (Münch. med. Woch., 1907, No. 10.)
- TSCHISTOWITCH: Ueber die Blutplättchen bei akuten Infektionskrankheiten. (F. H., 1907, Heft 3.)

WEIL: Die Komplementbindung und ihre praktische Verwerthbarkeit. (F. H., 1907, Heft 3.)

The *Folia Haematologica* published by Pappenheim at Leipzig is the principal international organ for all investigations in the field of hematology at present.

Ehrlich is still the leader among hematologists, especially in the researches concerning immunity and the methods of examination.

But *Arrhenius* opposes the universal practicability of the side chain theory in as much as he recognizes a physical absorption of the ambozeptors. Furthermore, *Mauwaring* states that physico-chemical research of hemolytic serum is at present almost an impossibility since the results obtained are so varied.

Pappenheim in one of his monographs opines that the so-called leucanemic diseases are not affections per se, but are accidental anemic varieties of genuine leucemic (hyperplastic) or of leucemoid affection. This very interesting treatise deserves closer study, but we cannot dwell on it at length, since this would lead us beyond the limits of this review, but his tract places him in the ranks of the foremost scientific critics. In his other work the author sets forth that the plasma cells are of lymphocytic origin, but the occurrence of lymphocytes concomitant with inflammatory processes of the connective tissues is partly of hemotogenic origin, and partly of preformed extravascular lymphocytic source. *Paulicek*, after an exhaustive study of a number of cases of malaria, tetanus, pneumonia, typhus, tuberculosis and other infectious diseases proves that a normal neutrophil blood picture will be produced by triacid staining. But this blood picture will change in a number of toxic and infectious affections in such a way that the relative and absolute augmentation of cells with relatively simpler granulas will be found in the blood. His conclusion is that only triacid staining shows these results. In regard to diagnosis, the method of *Arneth* is not absolutely reliable, since different affections will show the same blood picture by this test, and vice-versa, consequently prognoses based on this test are equally uncertain and doubtful. In the author's opinion *Arneth's* method cannot replace the tests heretofore generally applied. In response to this assertion *Arneth* maintains that *Paulicek's* deductions are fallacious as he misunderstood *Arneth's* theories.

For the purpose of staining fresh blood *Comesatti* employs a mixture of equal parts of Sudan III und Brillantcresyl blue in pure alcohol and to insure greater durability exposes them to formalin vapors. The origin of sudanophil leucocytes in the course of infectious diseases is in his opinion partly due to fatty degenerations of the exudate cells and mobilization of the products of disintegra-

tion of the corpuscular elements of the exudates, and partly to the introduction of phagocytes.

Cesaris-Dehmel claims that better results are always obtained from the examination of fresh blood, and the thinness of the stain is of greatest importance. He observed three different substances varying in form and staining qualities in the erythrocytes. The younger the individual is from whom blood specimens have been taken, the clearer these three substances are discerned. Any divergence from the usual appearance of these substances can be accepted as a proof of a degenerating process and this is characterized by excessive intensity of the metachromatic reaction.

Weil comes to the conclusion that the complement fixation on account of its greater sensitiveness is to be preferred to precipitation-reaction for the detection of small amounts of albumen. As dissolved bacterial substances and their specific antibodies are also causing complement fixation, the method may be applied to the detection of bacterial substances and their antibodies. Concerning the detection of antibodies in immunoserum which are produced artificially, better results are obtained by agglutination or bacteriolysis. On the other hand this method cannot be employed in the detection of antigens in the blood and is of little value in the detection of antibodies in infectious diseases caused by bacteria not cultivable or not known.

Tschistowitsch, who made researches pertaining to the blood plates in acute infectious diseases, claims that in almost all infectious diseases the amount of blood-plates is diminished while the fever is at its height, but their numbers increase after the temperature subsides and during the convalescence. *Lucksch* published a treatise which contains the following points: That in all fever cases leucocytosis was present, but only in two cases these disappeared before the subsidence of the temperature, and in some cases the leucocytosis could be observed before the occurrence of the exanthem. The leucocytosis is to a great extent due to the presence of mononucleous cells of Ehrlich. But the tests for parasites brought no results. The phenomena of poikilocytosis could be detected on the erythrocytes.

Roosen-Runge states, in regard to the application of sodium glycocholicum for the purpose of blood-tests in typhoid fever that, as a rule, 16 hours after this application colonies of bacteria could be observed. The composition of the application is as follows: 1 litre bouillon of 0.5 kg. beef, 20 g. agar, 10 g. pepton, 5 g. NaCl, 10 g. nat. glycochol.

Ghedini contributed a valuable communication to the test of the Pfeiffer bacillus in the blood and in the spleen in cases of influenza, and he draws special attention to the fact that the search for bacilli

under normal temperature is in vain, as the typical bacilli are only present during the fever period.

Arndt states that the natural immunity of man against staphylococci is innate. Antistaphylococcal is present in the blood serum, in the exudates, and in inflammatory oedemas, they may even occur in the blood sometime after the affection has disappeared. The formation of the antitoxin takes place probably independently of the blood-producing organs, and is augmented by stagnation. The hemolytic test is of value in diagnosis but not in prognosis.

Rubinato sets forth that in hepatic cirrhosis a certain degree of anemia with a relative diminution of hemoglobin occurs. In regard to the differential diagnosis he states that, with the exception of biliary cirrhosis, no increase of leucocytes is found in these affections.

Schlesinger & Holst dwell upon the superiority of the Benzidin test for the detection of minute hemorrhages in the digestive and urinary organs.

Jessup cites a case of pernicious anemia in which a sudden augmentation of megaloblasts was followed by a remarkable improvement of the general condition. *Lehndorff & Zak* describe a case of myeloid leucemia which deserves attention by cause of the senility of the patient. As a rule this disease occurs only in middle age.

De Davis shows that hemophilic bacteria of different origin can not be distinguished upon morphologic basis. They all grow through hemoglobin, but are unable to utilize hemocyanin, hemerythrin and echinochromo. For their development a solution of hemoglobin 1 to 180,000 is sufficient.

Progress of Diagnosis and Prognosis

GENERAL METHODS OF EXAMINATION—SYSTEMIC AFFECTIONS—DISORDERS OF GENERAL MET- ABOLISM—INFECTIOUS DISEASES

A Pusreaction of differential-diagnostic Importance—*S. Wideroe*, Norsk. Mag. for Laegevid, 1907, No. 8.

Tuberculous pus dropped into Millon's Reagent causes formation of lumps as described by Müller; distinct red coloration of Millon's reagent by the pus points to the absence of tuberculosis.
Jessen.

Carbolic Fuchsin Stain for Tubercle Bacillus-Improved—*R. O. Le Baron*, Journ. A. M. A., Dec. 21, 1907.

The staining solution consists of a saturation of methyl alcohol (97 per cent.) with fuchsin to which is added 5 per cent. phenol (carbolic acid). The fluid will stain the tubercle bacilli in sputum without employing heat in four minutes. Preliminary fixation is not essential on account of the methyl alcohol contents of the stain, but a smoother field may be obtained by light fixation in the flame. (The sputums were all incubated for from twelve to twenty-four hours.) The specimen is then covered with the stain, which is allowed to remain at least four, but not more than five, minutes, timed by the watch; washed thoroughly in water; decolorized (dilute HNO₃ and 60 per cent. alcohol used separately), and counterstained as ordinarily. The counterstain should be rather light. The tubercle bacilli are stained deeply and the field is unusually clear.
Western.

The Salicylates in Diagnosis and Treatment—*A. Haig*, Medical Record, Dec. 21, 1907.

In many local troubles such as fractures of bone or old scars in fibrous tissue which generally react to changes of weather and season by some increase of local irritation or pain, the application of a little oil of wintergreen will often suffice to relieve the patient and give a key to diagnosis.
C.

The Place of the Spirochaeta pallida in the Diagnosis of Syphilis—*Alex. MacLennan*, British Medical Journal, Nov. 23, 1907.

The presence of the *Spirochaeta pallida* may be accepted as diagnostic of syphilis. The silver method has shown that syphilis

and spirochaetes are almost invariably associated, and it has shown the sites preferably occupied by the spirochaetes—namely, glandular epithelium and connective tissue. The silver method is eminently suited for demonstrating spirochaetes in congenital lesions, and is of great importance from the diagnostic point of view in determining the cause of death of the ovum during pregnancy. C.

Serum Diagnosis of Syphilis—*William Butler*, New York Medical Journal, Nov. 30, 1907.

With the exception perhaps of Tuberculosis, there is no infection that offers at times greater difficulties in diagnosis than syphilis. Although there is a valuable therapeutic aid, it is generally recognized that it falls short scientifically and practically of being a satisfactory diagnostic measure. A certain means of diagnosis is realized in the serum reaction for syphilis. C.

The Tuberculo "Ophthalmic-Reaction" of Calmette—*J. W. H. Eyre, B. H. Wedd, and A. F. Hertz*. Lancet, Dec. 21, 1907.

In a very lengthy article the subject of the Ophthalmic Reaction is discussed, and the results of the observations have led the writers to form a "distinctly favorable opinion of the value of this test in diagnosis." C.

The Ophthalmo-tuberculin Diagnostic Test: Some clinical observations—*Edwin R. Baldwin*. N. Y. State Journal of Medicine, Oct. 1907.

The application of tuberculin to the eye was made by the writer, who made use of two solutions, beginning with the weaker and followed by the stronger in the opposite eye in forty-eight hours if no reactions occurred to the first test. He has tested thus far one hundred and thirty-six patients by the subcutaneous test. Of forty-four tuberculous patients forty-two reacted positively, one was doubtful and one negative. Of nine healed tuberculous persons eight reacted and one was doubtful. Of twenty-six suspected because of family history, symptoms or physical signs, eight reacted positively, four were doubtful and fourteen negative. Of fifty-seven apparently healthy, sixteen reacted, eight of whom gave a family history of tuberculosis, six of close contact with tuberculous persons, and there were only two in which no such history was obtained. The results correspond with those obtained by the subcutaneous test. C.

Ophthalmic-diagnosis of Typhoid Fever—*M. Chantemesse*, Paris. La Gazette médicale, Sept. 1907.

That a very clear diagnosis of typhoid fever may be made, either positive or negative, by means of the typhoid toxine injection, is asserted by the writer who gives the method employed by him

with the effects. By precipitating a strong solution of soluble typhoid toxine in absolute alcohol a powder is obtained, one-fiftieth of which is dissolved in a drop of water and injected into the eye. He declares that it occasions no inconvenience and no rise of temperature. Two or three hours after the injection, in healthy persons and in those suffering from maladies other than typhoid fever, there were a slight redness and epiphora disappearing in three or four hours, when there was no difference to be seen between the eyes. The reaction was much stronger in patients suffering with and convalescing from typhoid fever; it reached the maximum in from six to twelve hours, lasted until the next day and was characterized strongly by the redness, and by epiphora and sero-fibrinous exudate; in positive ophthalmo-diagnosis the eye treated may be more often recognizable two or even three after injection. C.

Alkaptonuria—*Grutterink and van den Bergh*. Tijdschr. voor Gedeesk. 1907. Nov. 17.

Homogentisinic acid, a product of intermediary metabolism, is the substance characteristic of alkaptonuria. Tyrosin and phenylalanin participate in the production of this acid. Alkaptonuria must be regarded as a qualitative deviation from the normal metabolism in which the aromatic groups of the albumin molecule are not disintegrated in the normal manner. *Zimmer*.

Diagnosis of Local and General Suppurative Peritonitis—*W. P. McAdory*. Ala. Medical Journal, Nov. 1907.

A condition seldom produced, without being preceded by a plastic inflammation with the formation of adhesions. The diagnosis is not difficult except in abscess under the diaphragm. Pain over the entire abdomen is the first general symptom. Tenderness is usually marked over the locality of the abscess, also muscular rigidity; vomiting is present. The temperature seldom runs high, and the pulse is not often over 120. The tumor can usually be felt, and the diagnosis made from the history, the presence of the tumor, and the symptoms of sepsis. C.

Early Diagnosis of Tuberculosis of the Bronchial Glands in Children—*A. D'Espine*. Tuberculosis VI. Nov. 5, 1907.

Bronchophony is the earliest and often the only sign of tuberculosis of the bronchial glands. The latter may appear without pulmonary disease or may antedate a lung affection. In children, tuberculosis of the bronchial glands is frequently the solitary symptom of a tuberculous infection. Infection takes its origin in the intestines and occurs during the first four or five years of life, and not during early infancy. *Western*.

Pyocyaneus—*A. Benfey*. Med. Klinik, 1907. No. 30.

An infant, eight days old, when admitted to the clinic, showed elevation of temperature, slight but lasting rigidity of the muscles of the extremities and decidedly pronounced rigidity of the muscles of mastication. The urine contained albumin and sugar. There occurred some convulsive attacks. Patient died on the fourth day. Necropsy revealed suppurative meningitis, acute myelitis, intramuscular and intravalvular abscesses, and suppurative pericarditis. Pure cultures of the *Bac. pyocyaneus* were obtained from the pus. The clinical picture furnished no clue for the diagnosis. The prognosis is fatal.

Western.

Pneumococcal Arthritis—*L. Bassenge*. Charite-Annalen, XXXI, 1907.

The affection is mostly monarticular, comparatively benign, generally serous or sero-fibrinous, rarely suppurative. The prognosis of simple cases is favorable, that of complicated cases grave.

Western.

Symptomatology and Diagnosis of Normal Typhoid Fever in Children—*DeMery*. La Clinique, Sept. 13, 1907.

A review of the symptomatology and evolution of typhoid fever in children, including a personal observation of a little patient. In children the onset is often sudden—temperature 104° F. at the onset—with symptoms that are difficult to diagnose in the early stages. Sore throat as in scarlatina, vomiting as in pneumonia, etc., and it may even be ushered in by convulsions. Functional symptoms are much less marked than in adults. The red spots are nearly always very abundant and may be mistaken for measles. The pulse is more frequent than in the adult, but is not dicrotic. Heart complications are frequent and serious, pulmonary phenomena and urinary troubles insignificant. Desquamation is more marked in children, and the duration of the disease relatively short, from about two to three weeks.

C.

Brain Symptoms of Typhoid Fever simulating those of Mastoiditis—*Kaspar Pischel*. Cal. State Journal of Medicine, Nov. 1907.

History of a case in which the mastoid symptoms were so decided that typhoid fever was not diagnosed until very late. The patient, a young woman of 18, had all the symptoms of mastoiditis, and was treated for several weeks for that disease, the condition being similar to meningeal irritation. The aching of the eyes and sensitiveness to the shaking of the bed disappeared after an operation, but the condition of the wound did not explain the high temperature which still remained, while the pulse did not indicate any meningeal irritation. An examination showed enlargement of the liver and spleen; the Widal test was ordered, and typhoid fever

positively diagnosed. The patient, the author thinks, had typhoid fever before the mastoid operation was performed, and that it is well in a doubtful case of mastoiditis to make a thorough physical examination, not only of the ear, but of the whole body. C.

Diagnosis and Treatment of Diphtheria in Young Children—*F. P. Webster.*
Boston Medical and Surgical Journal, Nov. 21, 1907.

The younger the child, the higher the mortality, the greater the urgency for diagnosis and treatment. Diagnosis by smears is unreliable as when smears show no bacilli, bacilli may be shown by culture. Clinically, by certain familiar symptoms and signs, diphtheria can usually be recognized, though of course there is a possibility of mistake.

It should be borne in mind that very young children rarely have follicular tonsilitis.

The conclusions are that, in young children, a probable diagnosis of diphtheria should be made upon comparatively slight evidence; that the dangers of waiting are so great, that a clinical diagnosis is of first importance and all sufficient for the purpose of treatment; and that cultures are of value mostly for purposes of immunization and quarantine. In larger cities where the mortality was from 35 to 50 per cent. without antitoxin, it is now less than 10 per cent. In children under two years of age the mortality is still about 30 per cent. in recognized cases. In young children the initial doses of antitoxin should average 3,000 to 4,000 units rather than less, because recovery is quicker and it is less often necessary to repeat the injection. It should be remembered that a nursing mother, ill with diphtheria, excretes antitoxin in her milk. A case is cited of a patient with a suckling one month old. The mother had a severe tonsillar diphtheria. Her boy, six years old, developed diphtheria within twenty-four hours; but the baby nursed at the mother's breast remained well. C.

Scarlatina and Duke's Disease—*A. A. Cotton.* Journal A. M. A., Oct. 26, 1907.

To scarlet fever, measles, and German measles, Duke's disease may be added. It is less contagious than measles, probably less than scarlatina. The incubation period is from one to three weeks. Prodromata are often wanting, the first symptoms often being the rash. Mild catarrhal symptoms with hyperæmia of the faucial, oral or ocular mucosa, may be present. The eruption appears first on the neck, syreading rapidly downwards over the trunk. Occasionally fine points first appear, quickly blending in a general hyperæmia. The marked oro-nasal pallor of scarlet fever is not in evidence. The color of the rash is suggestive of scarlet fever; it fades rapidly after two or three days without stain. Itching is absent; the skin

is not hot to the touch. Desquamation usually, but not always, follows the disappearance of the exanthem. Its character is fine and branny. The febrile movement, usually marked, subsides rapidly with the eruption. The tongue, except for an occasional coating, is negative, as also the throat. The pulse shows no acceleration out of proportion to the febrile movements. No massive enlargement or softening have been observed in uncomplicated cases. As a rule, no complications nor sequelæ occur. *The differential diagnosis from scarlet fever:* 1. Long period of incubation; 2. Absence of initial vomiting; 3. Moderate fever of brief duration; 4. Normal rates of pulse to temperature; 5. Absence of characteristic scarlatinat tongue; 6. The absence of, or if present, the fine character of desquamation; 7. The freedom from sequelæ; 8. Probably the absence of leucocytosis. When one or more cases of apparent mild scarlet fever occur in a family giving a clear history of former attacks of scarlet fever, Duke's disease may be suspected. C.

RESPIRATORY AND CIRCULATORY ORGANS.

The Value of Grocco's Sign.—*E. Cassat.* La Clinique, Oct. 25, 1907. ✓

The author gives the views of Koranyi, Perracini, Picot, Thayer and Fabyan which were similar to his own, research having confirmed the reality of the existence of Grocco's triangle. He agrees with Grocco and Pierracini that the perivertebral triangle is not present in splenopneumonia, and that consequently it constitutes a most excellent sign of differential diagnosis to separate splenopneumonia from exudative pleurisy. C.

Some Remarks on the Diagnosis and Treatment of Pericarditis—*Samuel West.* British Medical Journal, Oct. 26, 1907.

The pain in pericarditis may be due to friction or may be of cardiac origin; when due to friction it is generally limited, and is not radiated or referred, but cardiac pain of the acute kind resembling angina, is very rare. Friction is the most characteristic sign, and when present most conclusive; it is sharply localized and not referred. Cardiac dulness is always increased. Where there is pericarditis this is a matter of course, but it occurs equally when there is no effusion, and is then due to dilatation of the heart which must of necessity occur in any form of pericarditis. The dilatation will be most marked where the muscle is thinnest and weakest, namely, the left auricle and right side. One of the earliest signs of pericarditis is said to be an increase of dulness to the left base, but the writer thinks it is really due to the dilatation of the left auricle. The left ventricle is the last part of the heart in which dilatation occurs. The clinical experience of paracentesis proves

beyond question how very difficult the diagnosis between pericardial effusion and cardiac dilatation is, even in the hands of the most competent diagnosticians.

Systolic recession of the apex beat is a pathognomonic sign of adherent pericardium when it is present, but the converse is not true that the pericardium is not adherent if systolic recession of the apex beat be absent, for adherent pericardium may be present with no definite sign at all, unless it be a slight increase of the cardiac dulness for which other causes might be assigned. When there is effusion enough to separate the heart from the chest walls, the heart sounds will be muffled, but heart sounds may be equally weak from dilatation only. A perverted pulse-respiration ratio is often spoken of as if it was peculiar to acute pneumonia, but in acute pericarditis it is often as marked or more so, the writer having frequently found the respiration rate to be 50 or 60, and in a recent case, as high as 70. The true *pulsus paradoxus* (*pulsus cum inspiratione intermittens*) often described as of common occurrence, he considers very rare, and under any circumstances, however interesting as a phenomenon, is of no practical use in diagnosis. C.

Syphilis of the Heart and its early Diagnosis—*B. Herzog*. Berliner klin. Wochenschr., Aug. 5. 1907. No. 31.

In the presence of aortic insufficiency or other cardiac disease in the comparatively young who presents no history of articular rheumatism, the possible existence of syphilis should be duly considered. Increased blood pressure, accentuation of the second aortic sound, intensified apex impulse and Musset's symptom point to disease of the aorta and the coronary arteries which is very likely of specific nature when there is a history of syphilis. The rapid development of these symptoms and the appearance of neurotic cardiac phenomena in the formerly non-neurasthenic is conclusive as regards their syphilitic nature. *Western.*

The Scarletina Heart (Myocarditis scarlatinosa)—*Pospischill*. Wiener klin. Wochenschr. 1907. No. 37.

Division (Spaltung) of the first sound and a friction sound as in pericarditis—symptoms of myocardial disease—often supervene in the heart of children affected with scarlatina. These abnormal sounds may be of value in the recognition of rudimentary cases of scarlatina. *Western.*

The Association of Tabes dorsalis with Diseases of the Heart and Vascular System—*A. Strümpell*. Deutsche Med. Wochenschr. Nov. 21. 1907. No. 47.

In patients with insufficiency of the aortic valves, sclerosis of the aorta and aortic aneurysm symptoms of synchronous tabic dis-

ease, if diligently looked for, are not infrequently met with. Again, pronounced *tabes dorsalis* is found associated with aortic insufficiency and aortic sclerosis in comparatively many instances. The association of both affections is due to the self-same causative factor. They are the after-effects of a syphilitic infection. The demonstration of solitary tabetic symptoms, especially of the Argyll-Robertson pupil, is sufficient evidence of the presence of the syphilitic stigma and hence of considerable diagnostic importance.

Western.

Obstruction of the Superior Vena Cava—*Revilliod. Revue méd. de la Suisse rom. XXVII. No. 5.*

The symptom-complex of this condition comprises bilateral or unilateral cyanosis of the face, neck, chest and the arms, edema, appearing at first in the recumbent position only, but not subsiding when in the erect posture later on, exophthalmos, dyspnea, tachycardia and tumefaction of the typhoid gland. The similarity of the latter symptoms with the syndrome of Graves' disease may give rise to the wrong diagnosis.

Western.

The Value of Blood Pressure Determination in the Diagnosis of Aneurysm of the Thoracic Aorta—*O. K. Williamson. Lancet, Nov. 30, 1907.*

The results of instrumental examination for detecting differences between the pulses on the two sides, either as regards their volume or the time of their recurrence, as compared with digital examination, are given. In a large proportion of cases of aneurysm of the thoracic aorta, detection by the latter method is impossible. Thirty cases of aneurysm were investigated, the observations were limited to cases in which the aorta or the innominate artery was involved, because it is among these cases of aneurysm only that one would look for differences between the pulses on the two sides.

The instruments employed were Stanton's blood-pressure instrument and Oliver's hemo-dynamometer. The readings of systolic pressure obtained by Stanton's instrument were used as the basis of comparison, less importance being attached to Oliver's.

Conclusions.—1. The arterial blood pressure in most cases of thoracic aorta or innominate is either normal or almost so. It is as a rule, however, much higher in cases of mere dilatation of the aorta, and this fact is of some value in the differential diagnosis of these two conditions.

2. A distinct difference between the arterial blood pressure in the two arms is the rule in the majority of both aneurysm of the aorta and innominate, and on the other of dilatation. Therefore such difference is of no value in differential diagnosis.

3. Whilst distinct (at least 5 millimetres), or marked, (at least 10 millimetres) differences are the rule in a far larger propor-

tion of cases of the aorta or innominate than in those of arteriosclerosis of mediastinal tumors, they are sufficiently frequent in the latter to conclude that their presence in a given case affords but little help in a differential diagnosis. Differences of pressure greater than 20 millimetres, however, give strong evidence of aneurysm of the arch or ascending portion of the aorta against the other two conditions.

4. A distinct difference between the pressure on the two sides is the exception in cases where none of afore-mentioned pathological conditions exist.

5. Digital examination of the pulses in cases of aortic aneurism is a far less sensitive method than instrumental, frequently gives results directly at variance with those obtained by the latter means, and therefore are of much less value in diagnosis. C.

ALIMENTARY TRACT.

Determination of the Size of the Stomach by Handpercussion—F. Schilling,
Zentralblatt für Innere Med., Nov. 23, 1907.

The stomach contours are determined while the patient is in dorsal position with relaxed recti muscles. The examiner percusses with his right hand the epigastric and left chondriac regions by striking lightly in vertical direction from above downward or from the left to the right. The contours of the stomach, thus ascertained by percussion, are at once marked with a blue pencil held in the left hand. The percussing fingers are slightly contracted. Percussion is performed along four vertical lines from above downward, 1. in the median line from the xiphoid process to the umbilicus (or further below), 2. in the left parasternal line beginning at the sixth costal cartilage, 3. in the left papillar line from the nipple downward, and 4. in the right parasternal line as far as there is tympany. Horizontal blue marks denoting the contours are at once drawn with the left hand. After this, the extent of the stomach from left to right is determined by a maximum horizontal line and the limits are denoted by vertical pencil marks. By means of the eight horizontal and two vertical pencil marks the size of the stomach may be readily ascertained.

The determination of the size of the stomach by handpercussion is best made before withdrawal of the test breakfast as this and the air contained in the organ enhance the tympanic sound. The diagnostic value of this simple method is about the same as that of the much more complicated procedure of air inflation.

Western.

Physiologic Methods in Diagnosis of Gastric Disease—Fenton Turck, Chicago Medical Record, Dec. 1907.

In the physiologic methods of diagnosis we arrive at conclusions by determining the quality and quantity of work that an organ or organs can do as measured by certain standards. The product of the work of an organ is used as an index of its condition. We determine the status of the secretory and motor functions of the stomach by testing digestion. One of the most important advances made in diagnostic methods is that of the stomach contents, usually under some form of standard test meal. The three methods in general use for examination of the stomach contents are vomiting, aspiration, and expression. A very desirable method for the removal of the stomach contents is that of the expulsive method, which is explained and its advantages summed up. The differential diagnosis between motor insufficiency due to stenosis of the pylorus, and primary atony of the stomach without stenosis, is given. While therapeutic tests are not scientific as a diagnostic measure, such methods as pneumatic gymnastics of the stomach and other important gastric therapeutic methods will help to make our diagnosis more certain, and they must be utilized until our knowledge of etiology and pathology becomes more complete. C.

Phlegmonous Gastritis—H. E. Robertson, Journ. A. M. A., Dec. 28, 1907.

The disease may not show other symptoms than pain in the epigastric region, vomiting, collapse and death. More frequently it begins with a severe chill, followed by moderate fever, accelerated pulse, burning or gnawing pain in the pit of the stomach, tenderness over the epigastric region, intense thirst, vomiting of bile-stained fluid, and a general appearance of a graver illness than is suggested by the symptoms alone. Usually, the affection progresses rapidly, vomiting becomes more violent, pain constant and severe, pulse rapid and running, tenderness extreme, and abdomen tense and rigid. Collapse and exitus ensue rapidly.

Temperature ranges between 99 and 102° F. Sometimes there is no fever. Pulse becomes rapid quite early, increasing in frequency and becoming weaker out of all proportion to the temperature. Vomiting is a constant symptom, and is uncontrollable as the affection progresses. When accompanied by peritonitis the vomitus often changes from bile-stained fluid to a fecal type. Some patients vomit pus. Tenderness may be present over the entire abdomen, but is more often limited to the right upper quadrant or the epigastrium. Pain is intermittent or continuous, sharp cutting or dull gnawing. In the later stages there are mostly symptoms of local or general peritonitis. Either diarrhea or constipation may occur. The physical signs are vague. Sometimes a local tumor mass

can be palpated and the stomach is generally much distended. In as much as these symptoms are common to many affections of the upper abdomen and on account of the rapid progress of the disease, the diagnosis is hardly ever made before autopsy. The course of the disease is generally very rapid, in some cases exitus occurred between 24 and 36 hours after the onset. The average duration is from four to six days. Cases lasting from twelve to fourteen days are reported. The prognosis is very grave, the mortality rate being about 98 per cent. *Western.*

Factors influencing the early Diagnosis of Gastric Carcinoma—Walter J. Stone, American Journal Medical Sciences, Oct. 1907.

The early diagnosis of gastric carcinoma must remain the important factor leading to permanent aid or amelioration. Loss of weight and age of the patient have only relative importance in early diagnosis; while the majority of patients are over fifty years of age, carcinoma can scarcely be called rare under thirty-five. Vomiting may not be called an early symptom, hemorrhages occur late except in cases specified by the writer; pain in the early stages is not marked, and when a palpable tumor is present upon inflation, the patient can scarcely be considered a subject for early diagnosis. As regards evidence of stagnation in the fasting stomach, Ackerman and Gompertz have found that lactic acid and sarcines are supplemented by Oppler-Boas bacilli, and when abundant, are of much more diagnostic import as indicative of malignant stenosis at the onset, than the finding of sarcines in benign obstruction.

It is safe to assume that organic disturbance is present in a case in which simple dilatation is excluded under the following conditions: Where evidence of stagnation is present; if, under the various test-meals it is found that seemingly permanent alterations have taken place in the way of deficient HCl, or excessive organic acids with the finding of yeast and long bacilli; and where the stagnation and secretion are not improved by treatment. Mayo found that in 313 operative cases only 26 were diagnosed early enough to permit radical extirpation. This fact should make physicians the more anxious to give such sufferers the benefit of competent surgery, and the whole matter hinges upon early diagnosis. "A suspicion of cancer of the stomach, which cannot be dissipated by known methods within a short time, should lead to exploration." (Mayo.) *C.*

Early Diagnosis of Gastric Cancer, with Report of a Case—L. M. Gompertz, Med. Rec., Oct. 5, 1907.

When there is an absence of free hydrochloric acid, with diminished gastric secretions, after a test breakfast, and the presence of stagnation and the lactic acid bacilli can be determined micro-

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scopically, it is justified to treat the case surgically. While the absence of lactic acid bacilli may not exclude the diagnosis of pyloric cancer, their presence constitutes one of the most valuable confirmatory signs in the early diagnosis of the affection.

Western.

Diagnosis of Gastric Cancer—*Richard F. Chase, Boston Medical and Surgical Journal, Nov. 28, 1907.*

If from history, age and loss of weight (enough points in any case to arouse suspicion), cancer is suspected, then by a thorough physical examination together with the applications of the various diagnostic tests at the physician's command, the suspicion of cancer may be confirmed, or its falsity proven. The continued absence of HCl and the presence of lactic acid, when frequent gastric lavage is employed, are chemical abnormalities of the gastric juice most often met with in cancer of the stomach, and very rarely in other conditions.

In the absence of gross signs of stasis, the finding of microscopic fragments of food in the rinsing water, several hours after the stomach has emptied itself—and especially if the lactic bacillus is present—Ziegler considers an early and constant symptom of cancer. Solomon's test and aspiration of the stomach's contents are spoken of as helps in reaching a diagnosis; inability to pass a stomach tube more than 15 to 16 inches point strongly to a malignant disease.

No rule can be established as to the time allowed for making a diagnosis, except the general one that it must be as short as possible. In advanced cases in which a radical, in fact, any operation, is out of the question, one or two examinations will be sufficient to form a diagnosis; while in earlier cases from one to three weeks will be necessary. In a small number of cases where the true condition cannot be determined by medical means within three weeks time, exploration should certainly be made and the operation carried out which seems indicated. Cancer of the stomach should more often be thought of by the physician in his diagnosis of gastric disorders, and at an earlier stage of the disease

C.

Acute post-operative Paralysis of the Stomach with secondary Occlusion of the Duodenum—*Bernheim, Göttingen, Monatsschr. f. Geburtsh. u. Gynaecol., Bd. XXXIV, S. 170.*

A vigorous woman, on whom laparotomy was performed, developed acute paralysis and dilatation of the stomach and temporary occlusion of the duodenum. The symptoms began two days after the operation with repeated vomiting, rapid, increasing weakness of the heart and system, but no pain. The diagnosis was confirmed by lavage, when the distended stomach collapsed. The

occlusion of the duodenum was evidenced by the presence of bile and pancreatic juice in the vomitus, and the free excretion of indican in the urine.

Cronson.

Discussion on the Diagnosis of Acute Pancreatitis—British Medical Journal, Oct. 26, 1907.

Osler: The study of pancreatitis might be divided into three periods—that time when the pancreas was believed to be of little if any importance, the time when the work of Fitz appeared, and the later time of the discoveries of pancreatic ferments and the relation of the pancreas to the production of diabetes. He recognized two groups of acute pancreatitis—one group in which there was distinct enlargement of the gland which might be partly due to hemorrhage into its substance; another where the gland was in a state of supuration. An important distinctive anatomical point is, that in the acute pancreatitis hemorrhage cases there is no fat necrosis.

A mechanical cause, as a calculus in the common bile duct leading to bacterial infection; a chemical cause, as bile, gastric juice, or duodenal contents; an infective cause—the various pathogenic organisms in the intestine—are the three main causes of pancreatitis, the last named being the most important of all. The frequency of the association of gall stones with acute pancreatitis is remarkable, occurring as it does in nearly half the cases. Bile, independent of bacterial invasion, is probably unable to set up the disease alone.

It may be said that the diagnosis of acute pancreatitis was often impossible, for the same symptoms might be found in severe hepatic colic or acute perforation of the stomach. The history is of the greatest significance especially in middle aged men. Death occurs as a rule from three to four days from the onset.

As to the prognosis, 90 per cent. of a large series of cases not operated on, died, and more than 50 per cent. of those operated on, recovered. Those cases caused by gall stones are especially fatal.

Cambridge: Only in a small number of cases of pancreatitis a correct diagnosis was made either prior to operation or at post mortem examination. Taking 50 recently reported cases, 12 were diagnosed as perforating gastric ulcer, 12 as intestinal obstruction, 4 as peritonitis, 2 as appendicitis, 2 as cholecystitis, 1 as strangulated hernia, 1 as angina pectoris, 12 no diagnosis, and only 5 diagnosed as acute pancreatitis. Such results imply that reliance upon clinical history and symptoms alone rather mislead than furnish the basis for correct opinion. The important part that the pancreas has been shown to play in digestion and internal metabolism naturally suggests that an examination of the secretions of the body will be likely to afford evidence of the disturbance of func-

tion produced by inflammation of the gland or its partial destruction in acute pancreatitis. Unfortunately, the constipation usually accompanying such cases at the onset, does not permit the application of this method. C.

Diagnosis of Gall Stones—*Neil MacPhatter, The Post-Graduate, Nov. 1907.*

It is in the two extremes, the large and the small stones, that few or any symptoms of gall stones are noticed. There are two points which a calculus is most likely to obstruct, the cystic duct, known as the valve of Heister, and the point where the common duct passes into the duodenum. It not infrequently happens that at post mortem examination a number of stones are found lodged here unable to pass through the narrow point beyond, and this should be remembered when the abdominal wall is opened. Investigation is carried no further sometimes when there are no stones found in the gall bladder.

It is well to feel all along the ducts, especially in the region of the diverticulum of Vater, and to make a thorough examination in the region of the lower margin of the liver. In rare cases, the gall bladder may be distended that it assumes such large proportions as to make it difficult to distinguish it from hydronephrosis or ovarian cyst. Little collateral evidence is present in the majority of such cases. Jaundice is seldom a symptom, as it is only when impaction takes place in the hepatic or the common bile duct, that jaundice occurs.

As the subject is of great practical importance to the surgeon, the diagnosis of a distended gall bladder should receive the greatest care and attention. The condition being frequently simulated by other pathological abnormalities, the difficulties which arise in diagnosis are generally associated with any one of the following: Floating or movable kidney, Hydronephrosis, linguiform process of the liver, ovarian cysts, growths in head of pancreas, and cancer of the liver.

Cholelithiasis is distinguished for the variability of its symptoms and pathology, nor can any rule be laid down as to when an attack may return in any given case, nor any estimate made of how long the attack may last; it may only be said that until the calculus effects an entrance into the duodenum, there will be more or less biliary colic with accompanying symptoms. This may be from an hour or two to the same number of days or even longer.

When the usual symptoms are present the diagnosis can readily be made, but it is in those cases where symptoms are lacking or incompletely developed, that difficulties arise. When investigating a case, a number of the most prominent symptoms should be taken in conjunction.

"Pain; elevation of the temperature; shivering sensation; retching or vomiting; jaundice; when the concretion is in the hepatic or common bile duct—clay colored stools, when long continued; tenderness and enlargement of the liver; tenderness at a point between the ninth rib and umbilicus; distension of the gall bladder; itchy sensation; weak, fainting turns; convulsions, and cold perspirations, may one or all be present, but the one that stands out most prominently is pain." Besides the severe nature of the pain, its sudden onset and equally sudden cessation are predominant features. A slight elevation of temperature, usually preceded by a rigor, is a fairly common symptom of an attack of biliary colic. The urine voided during or just after an attack is generally more copious in amount and of a pale color, and where no jaundice is present, there will be little or no change in color. So far as has been shown, cholesterin has never been found in the urine. C.

NERVOUS SYSTEM.

Symptoms of Anterior Poliomyelitis in the Acute Stage—*Louis C. Ager*,
Long Island Medical Journal, Dec. 1907,

Earliest manifestation of the infection is always to be found in the gastro-enteric tract, with an accompaniment of fever. Constipation is an early symptom. In some mild cases there is a history of a gastro-enteric disturbance one or two weeks previous to the paralytic attack. Convulsions occur during the first day or two. Pain and tenderness have been prominent symptoms in all cases of extensive paralysis, and tenderness on pressure and movement are also seen early. That this is not a true neuritis may be demonstrated in children old enough to discriminate, for the soreness is in the muscles, not in the nerve trunks. There is no disease in which the individual cases differ more widely than in anterior poliomyelitis. There is a mild type which might be easily overlooked—that in which some unusual group of muscles of the back are the only seat of the paralysis. Another type difficult or impossible to differentiate early, consists of those cases in which the infection is so high in the cord that the disease closely resembles meningitis with opisthotonus, convulsions, irregular and sluggish pupils, severe headache with rolling of the eyes, head, and the occasional sharp cry; such a case may recover with a limited area of permanent paralysis. On the other hand, distressing symptoms may occur in cases which show rather a mild early stage. *Goodhart.*

Sensory Symptoms in the Acute Stage of Anterior Poliomyelitis—*William Browning*, Long Island Medical Journal, Dec. 1907.

During the onset of this disease sensory manifestations are common.

First.—Gross sensory disturbances—an impairment of all forms of sensation from the affected portion of the cord.

Second.—Paræsthesiæ.

Third.—Pain. The most important effects on the sense side in this disease are the various forms of pain. The early pain can be classified as an hyperalgesia as in meningitis. Next comes spinal pain, in some few cases very severe, in others entirely absent; from its character it appears to depend on the extent to which the spinal meninges are implicated in the process. This spinal pain is favorably influenced by local counter-irritation. There is another type of pain, little recognized, distinctly later in appearing. This is the soreness and tenderness that comes on after the acute stage has passed, and is wholly peripheral in site; this is pain on motion and manipulation. It is known, that after nerve section, it requires two days to a week for muscular degeneration to become evident. This form of pain persists in light cases for a week more or less, in severe cases as long as a month. It has a prognostic value, for as soon as it can be mapped out, it gives the means of distinguishing in these young subjects more exactly than by electrical or other means, the extent of the muscular involvement.

Goodhart.

Paresis—Certain Features in regard to Etiology and Differential Diagnosis

—*John G. Fitzgerald*, Canadian Practitioner and Review, Nov. 1907.

A very large percentage of the cases of paresis may, in their method of onset, simulate cases of acute maniacal excitement, of a functional character, and the practitioner must be ever on his guard lest he give a favorable prognosis in a condition that invariably ends fatally.

In eight cases mentioned, greatly increased psychomotor discharge, emotional exaltation, and a suggestion of flight of ideas were present, showing the difficulties of diagnosis in such cases. In every case of a psychosis developing suddenly with acute excitement, in men between the ages of thirty-five and forty-five years of age, paresis should be positively excluded before any diagnosis is made.

Goodhart.

Diagnosis and Treatment of Acute Encephalitis in Children—*M. Comby*,

Archives de médicina des Enfants, Oct. 1907.

Attention is drawn to the necessity of distinguishing encephalitis from meningitis. The differential diagnosis is delicate and is based, essentially, on invariably sudden onset, in encephalitis the habitual absence of rigidity of the nape of the neck, Kernig's sign, cerebral spot, vomiting and constipation. A certain degree of accuracy may be obtained by the help of the lumbar puncture. In meningitis there is always a clear leucocyte reaction in the cephalo-rhachidian

(lymphocytes for tuberculosis, polynuclears for the bacterian meningitis) in acute ecephalitis there are no cellular elements. In case of meningeal hæmorrhage there will be found more or less of hæmatic elements in the cephalo-rhachidian fluid. *Goodhart.*

Apomorphine in Diagnosis of Bulbar Affections—*Ferreira*, La Presse médicale, Sept. 14, 1907.

Weak or negative response to a small injection of apomorphine will enable the physician to detect bulbar paresis before it is clinically manifested. In this way glosso-labial-laryngeal paralysis may be detected while incipient, by the degree of nausea and the amount of vomiting. The medulla oblongata will be found to be already seriously affected if there is no vomiting at all.

The Employment of Apomorphine in the Diagnosis of Bulbar Disease—*Ferreira*, La Presse médicale, Sept. 21, 1907.

In cases where doubt exists, a moderate dose of apomorphine hydrochlorate may be injected, and if not followed by vomiting, a grave bulbar lesion is indicated. A clear differential diagnosis can be made by this means between false and true bulbar paralysis. *Goodhart.*

Chronic Paranoia and Melancholia—*Paul Pieters*, Bulletin de la Société de Médecine Mentale de Belgique, Dec. 3, 1907.

The line is not always clearly drawn between melancholia and paranoia, and between typical forms of paranoia and typical forms of melancholia the clinical difference is slight. *Goodhart.*

Diagnosis of cerebrospinal Meningitis by Cultures from the Blood—*J. M. Birnie* and *M. T. Smith*, The American Journal of the Medical Sciences, Oct. 1907.

The number of cases in which the diplococcus intracellularis meningitidis has been found in the general circulation is 8. The patient was a girl of fifteen. She entered the German Hospital May 5, 1907. Family history negative. Her case had formerly been diagnosticated as acute articular rheumatism with acute endocarditis. Before admission the patient was suddenly seized with violent pain in the head, neck, and arms, vomiting repeatedly. She was conscious of all that was going on about her, was tender all over the body, free from eruption; heart dulness extended 2 cm. to right of sternum, to left midaxillary; systolic murmur heard at apex, transmitted to axilla. Temp. 102 to 103 degrees. White blood cells 38,000. May 6th a small incision made over one of the superficial veins at bend of the elbow, four c.c. of blood removed and distributed equally in two flasks containing 75 c.c. of starch bouillon. On May 7th the bouillon contained a

diplococcus which was isolated in pure culture on agar plates; the colonies were few and scattered. A diagnosis of diplococcus intracellularis meningitidis was made. May 11th the patient's opsonic index to the diplococcus obtained from the blood was 100 per cent. Temperature 103 to 103.4 degrees. Following day it had declined. On May 15th, her opsonic index was 172 per cent., temperature 101.40 to 101.80 degrees. Her temperature continued to fall by lysis. May 25th, temperature normal. Recovery. *Goodhart.*

The Diagnosis of Exophthalmic Goiter—*Lewellys F. Barker, Jour. A. M. A., Oct. 12, 1907.*

Besides the three cardinal symptoms—struma, tachycardia and exophthalmus—there is a large number of other symptoms, some more important than the exophthalmus as diagnostic aids because more frequent and characteristic. The thyroid gland is enlarged in a majority of cases of the disease. Since we have been taught how to recognize slight enlargements, the reports of exophthalmic goiter without goiter have become fewer, and some go so far to deny the existence of an exophthalmic goiter without struma. It does exist, however. Of twenty-one of the writer's cases a struma was recorded in eighteen. The whole gland is, as a rule, uniformly involved, giving rise to the well-known horse-shoe projection, but one lobe may be larger than the other. The struma is not large as a rule; the patient may not even have noticed the thickening of the neck. A characteristic feature is the granulation of the surface, usually recognizable on palpation, and is due to the lobular hyperplasia. Most important, from the diagnostic standpoint are the vascular peculiarities of the goitre for the typical struma in exophthalmic goitre is always a struma vasculosa. The telangiectasis is recognizable (1) by the visible pulsation of the goitre, (2) in many instances by the palpable systolic expansion, (3) by the palpable thrill, and (4) by bruits audible at the point of entrance of the thyroid arteries (especially the superior) into the gland. In the semeiotic trinity the increased frequency of the heart beat is the most constant and important sign. The pulse rate is practically over 90 and may exceed 200 beats to the minute. A rate between 110 and 150 is very common; patients usually notice subjective palpitation. Exophthalmus is entirely absent in about one-third of the cases, and may be so light in the other two-thirds as to escape attention. It is necessary to distinguish between apparent exophthalmus and true protrusion, the former as a rule more important as a factor than the latter. The tremor is a fourth cardinal sign. Throbbing of the carotids and the abdominal aorta is a frequent sign, and one of considerable diagnostic import, psychic manifestations are often pronounced and may be the first to excite suspicion.

There is a marked tendency to emaciation despite liberal feeding. The atypical cases and in the beginning of the disease some difficulty may be encountered in diagnosis. An important part of the physician's function lies in the diagnosis of the indications and contraindications for surgical intervention. A positive diagnosis of exophthalmic goitre having been made, it is the duty of the physician to recommend operation early. Not every patient presenting the V. Graefe phenomenon or the irritable heart should undergo operation but when a persistent tachycardia, associated with a vascular struma, has been discovered, or whenever the grouping of symptoms is such as to leave no doubt of the existence of a persisting thyreoid intoxication, medical treatment, unless markedly beneficial, should not be continued long, before the knife is resorted to. The only contraindications in uncomplicated cases are a feeble heart with a very high pulse frequency or pronounced psychic excitation. The remarkable results already obtained in a number of cases by Rogers and Beebe through the use of their curative serum gives us good reason to hope that a method will soon be perfected which will permit the internist to accomplish with his needle what he now asks the surgeon to do with his knife. *Goodhart.*

Preliminary Report on the Significance of the Ocular Signs and Symptoms of Dementia Precox as observed in a series of 115 consecutive cases
—H. H. Tyson and Pierce Clark, Neurological Society, Oct. 1907.

Definite changes were found in all the cases fairly distinctive of this psychosis. The fundus changes are divided clinically into three stages in their order of occurrence:

First stage: Congestion of discs, hyperemia and edema, dilated dark-colored veins, slightly contracted arteries, blurring of edges of discs all of varying degrees, constituting a low grade perineuritis of the optic nerve.

Second stage: Congestion of nasal side with temporal pallor of discs, dilated veins and contracted arteries.

Third stage: Pallor of discs, dilated veins, contracted arteries, constituting anemia and partial or complete atrophy of the optic nerve.

All forms in the disease group of dementia precox are studied. The more marked changes are seen in the more rapidly deteriorating types of the disorder. Alcohol and tobacco may have been contributory factors yet there still remains the fact that the detailed eye changes run throughout the series. The evidence is hence strong that some other potent toxin is responsible for the disc changes. The toxin is primarily a vascular poison, its probable source being autointoxication from liver or intestines.

The primary disc changes in dementia precox involve venous system, producing profound disturbance of nutrition and slow nerve fibre degeneration finally. Inasmuch as disc changes in the first stages somewhat resemble those seen in ordinary intestinal toxemia, observations while patients are under hygienic treatment of free catharsis, intestinal antiseptics, etc., show a certain degree of improvement. An average enlargement of dementia precox pupil over the normal amounting to 1.9-8.5 mm. is noted. Visual fields found concentrically contracted. *Goodhart.*

Galvanometer in Psychology—*Frederick Peterson*, Communication and Demonstration before N. Y. Neurological Society, November meeting 1907.

An instrument for measuring and demonstrating the intensity of the emotions shows the result of applying various psychic stimuli to the subject passively seated with palms of the hands resting on plaques. The fluctuations of a recording needle are indicated upon a screen. The degree of variation is clearly indicated. Mental activity other than that in coloring the emotions is not effected in inducing fluctuation on the recorder. To the scientific interest and value of the instrument is added a possible forensic utility. *Goodhart.*

URINARY ORGANS—MALE GENITALIA.

Some Advances in Renal and Ureteral Diagnosis—*Charles Lester Leonard*, Journ. A. M. A., Sept. 30, 1907.

The uncertainties frequently surrounding the diagnosis of lesions in the deeper urinary tract have been lessened by recent advances in the physical methods of diagnosis. The facts that have led to a more accurate localizing of intrarenal and intraureteral lesions are considered to have been derived from the study of the symptoms after an accurate localization of a calculus by the Roentgen rays.

Localized symptoms observed as grouped about calculi at different points in the urinary track have been utilized to locate other than calculous lesions, but these symptoms are not of themselves sufficient on which to base a diagnosis, nor is any method of diagnosis so accurate as to be self-sufficient. Accuracy of diagnosis is claimed for the exclusion and for the positive detection of calculi, by the Roentgen examination, 356 cases being cited with a total error of less than 3 per cent. *C.*

The Diagnosis of Kidney Disease, with special reference to the Significance of Slight Albuminuria—*Edgar Ballenger*, Medical Record, Nov. 30, 1907.

No positive opinion should be given until after the examination of many specimens of urine, as it is the persistence of renal albumin

and casts that is of more serious import than their occasional presence in larger quantities. The specific gravity is of great moment if the amount of fluids ingested is considered. Many patients go for years with orthostatic albuminuria of renal origin without any evidence of nephritis, but the prognosis should not be made from the urine alone but from the complete picture; therefore the heart, blood vessels, arterial tension, diet, intestinal canal, habits, and past history should receive due attention. C.

Tuberculosis of Kidney with report of cases—*Rufus S. Hall*, American Journal of Obstetrics and Diseases of Women and Children, Nov. 1907.

Renal tuberculosis in a vast majority of cases is limited to one kidney. Tuberculosis may reach the kidney by the circulation, the lymphatics or may be ascending by continuity from the bladder along the ureter, or more rarely may be directly communicated to the ureter by some focus outside of the genito-urinary tract.

The kidney may be involved in the tubercular process while the ureter and bladder remain free. The tubercular process, however, is prone to spread to the ureter and bladder. More rarely the tubercular process is ascending from the bladder to the ureter and kidney.

The caseous masses break through into the calyces and find their way into the renal pelvis and ureter, or more rarely may perforate the capsule and form tuberculous perinephritic abscess, or the ureter may become obstructed and a hydronephritic kidney develops.

All cases coming under the observation of the surgeon present enlarged kidney and tubercular ulcers in the bladder mucosa around the ureteral opening.

The main symptoms are: Lumbar pain, dysuria, polyuria, frequent micturition by day as well as by night, pyuria, hematuria, acid urine, the presence of the tubercle bacillus, loss of flesh, night sweats, pallor and slight elevation of temperature in the evening. The pain in the loin is moderate, radiating to the pelvis and is not aggravated by exercise. The pain is increased in intensity with the duration of the disease. At times the pain resembles that of nephritic colic due to stone, and is due to blocking of the ureter by pus. Cronson.

The Eye Changes in Nephritis in Children—*S. Stephenson*, British Med. Journ., Sept. 21, 1907.

Retinal complications occur apparently less frequently in parenchymatous than in interstitial nephritis. Ophthalmoscopically no difference either quantitatively or qualitatively is determinable between these two forms of chronic renal disease. The prognosis as regards the life of the patient with renal retinitis is as unfavorable in children as in adults. Western.

Diagnosis and Treatment of Prostatic Hypertrophy—*Joseph Wiener, N. Y.*
Med. Journ., Oct. 26, 1907.

The typical history and the large prostate, ascertained by rectal examination, are conclusive of prostatic hypertrophy. Occurrence of residual urine is an important additional symptom. It is rarely necessary to use the cystoscope. It is really not prostatic hypertrophy which we are called upon to diagnose and treat but prostatic obstruction.
Western.

FEMALE ORGANS OF GENERATION—PREGNANCY— PARTURITION—INFANTS.

How to Teach Diagnosis in Diseases of Women—*J. Riddle Goffe, American*
Journal of Obstetrics, Dec. 1907.

During the first year or two, as a teacher of diagnosis, the author evolved a scheme of diagnosis which demonstrated its merits by enabling the student to use his scientific imagination and follow his finger as it came in contact with the various parts. The scheme is given in detail and much stress is laid upon the importance of the *tactus eruditus*, which he considers has been so much misunderstood that a few words are given in explanation. The article is graphically illustrated by six cuts. Fig. 1 Correct position of examiner. Fig. 2. Securing the uterus between the two hands; showing the palm of the examining hand. Fig. 3. Showing the back of the examining hand; cervix and fundus in normal position. Fig. 4. Cervix in the axis of the vagina; fundus retroverted. Fig. 5. Fundus being restored to normal position; the cervix gradually changing to right angle to the axis of vagina. Fig. 6. Fundus completely restored; cervix at a right angle; finger cannot reach posterior fornix.
C.

Menstruation in Relation to Hysteria, Cardiopathy and Chlorosis—
Dieffen and Schroeder, Zeitschr. f. klin. Med., Bd. LIX, Heft 2-4.

Hysteria delays the onset of menstruation until the sixteenth year and rarely modifies the intervals of a menstruation once established, but is a common cause of dysmenorrhea, pains in the hypogastrium, sacrum and coccyx. Gynecological affections in hysterical cases are mostly concomitant phenomena.

Disease of the heart, acquired in childhood, sometimes has the effect of delaying the onset of menstruation somewhat beyond the sixteenth years. When menstruation is established disease of the heart rarely affects its type and in only a few cases are dysmenorrheal troubles due to heart disease. Anomalies of menstruation met with in heart disease cannot be ascribed to the disturbed circulation,

but to the general deterioration of the system brought about by the heart lesion.

In chlorotic patients the onset of menstruation is delayed. In eight and one-half per cent. of the cases in which menstruation had been normal before the chlorosis the intervals had been prolonged, in 12 17-100 per cent. the effect was just the reverse, and also in 12 1-10 per cent. chlorosis was followed by dysmenorrhea.

The intensity of the secondary disturbances of menstruation have no direct proportion to the decreased amount of hemoglobin in the blood. The menstrual anomaly is due not to the chlorosis but both are due to the imperfect development of the general system.

Cronson.

Intrauterine Disappearance of the Ovum—*Fränkel*, *Zentralblatt f. Gynäkol.*, 1907, No. 28.

A multipara, 29 years old, from whom both adnexae were removed for cystic degeneration proved to be pregnant at the time of operation. The pregnancy subsequently disappeared without any abortion.

Cronson.

Euuresis in the Female due to Phimosis—*Charles E. McGirk*, *Sur., Gyn. and Obst.*, Nov. 1907.

Incontinence of urine is due in a number of cases to a partially or completely adherent prepuce for which circumcision is advised.

Cronson.

Metastatic Carcinoma of the Tube and Ovary in Cancer of the Cervix—*Fred J. Taussig*, *Surgery, Gyn. and Obst.*, Nov. 1907.

A rare case of metastasis of a squamous-celled carcinoma of the cervix in the tubes and ovaries along the lymphatics of newly formed bands of adhesion running from the adnexae to the cul de sac.

Ordinarily in cancer of the cervix the adnexae remain free. In cancer of the body the adnexae are frequently found involved.

Cronson.

A Case of Intra-Ligamentary Urinary Bladder—*W. E. Fothergill*, *The Jour. of Obst. and Gyn. of the Brit. Emp.*, Dec. 1907.

A girl, 28 years old, complained of frequent micturition coming on with the onset of menstruation. Soon neurasthenia set in. On examination the uterus could not be retroverted and was more intimately connected with the bladder than normally. The fundus of the uterus seemed to dip into the posterior wall of the bladder. At the operation, total absence of the utero-vesical pouch was found, the peritoneum passing directly from the fundus on a line with the Fallopian tubes to the bladder. The bladder reached the upper

limit of the broad ligaments in the middle line, and extended into them on each side. When the bladder became distended with four ounces of fluid, it rose above the level of the uterus and the uterus tilted into the posterior wall of the bladder. *Cronson.*

Diagnosis of the Time of Pregnancy—*M. L. Funck-Brentano, La Clinique, Nov. 8, 1907.*

In discussing the difficulty of estimating the length of time that pregnancy has run and the date of confinement, the author affirms that whatever the method employed, the result can only be approximate. Where there is lack of knowledge as to the last menstrual period of the patient, or in nursing women, the size and height of the uterus will give the least false results. The following results are most common:

At 3 Mos.	. .	9	centimetres.
" 4 "	. .	15	"
" 5 "	. .	20	"
" 6 "	. .	24	"
" 7 "	. .	27	"
" 8 "	. .	30	"
" 9 "	. .	34	"

C.

Pyelitis in Pregnancy—*Sigmund Mirbeau, München, Arch. f. Gynäkol., Bd. 82, S. 485.*

The right kidney is more frequently involved as it is more liable to become compressed by the gravid uterus. The dilatation of the ureters is due to compression at the linea innominata and to the pressure of the swollen bladder mucous membrane of pregnancy at the mouth of the ureter. The close relation of the kidney to the ascending colon favors its infection. Infection may be due to gonococci, pus organisms, bacterium coli, and tubercle bacilli.

Gonococci rarely thrive in the urinary passages of the non-pregnant uterus, but they do so when the functions of the bladder are disturbed by pregnancy and the urine becomes neutral or alkaline. Pus cocci penetrate the kidney from the blood vessels or through the ureters. Catheterization of the ureters will show the source of the pus.

Infection due to the bacterium coli causes sudden symptoms of severe illness accompanied by pain, high temperature and tenderness of the kidney. Tuberculosis of the kidney is often not noticed until the second half of the pregnancy. Cystoscopic examination shows ulceration and pus around the mouth of the affected ureter.

Cronson.

Puerperal Infection—*Herbert M. Little*, Montreal Med. Jour., Vol. XXXVI, p. 395—405.

Exact diagnosis of the variety of spsis can be arrived at by bacteriological examination of the lochia in utero and the blood. William's method of obtaining the lochia in utero is advised. The microscopic appearance of the lochia collected in a tube is suggestive of the nature of the infection. A lochia stringy and gelatinous, of a greenish-yellow color possibly streaked with blood is probable of gonorrheal origin.

A diffuse cherry-red appearance of the lochia is suggestive of streptococcic infection.

In anaerobic infection the lochia are of dirty, dark-brown color. The smell is of no assistance in making diagnosis. *Cronson.*

Spurious Pregnancy and Missed Abortion—*Max Nassauer*, München, Arch. f. Gynäkol., Bd. LXXXII.

Patient had not menstruated for eight months. Was nauseated and other symptoms of early pregnancy were present. Felt fetal movements. On examination no pregnancy was found. Two days later patient passed a fleshy mole the size of a chestnut. *Cronson.*

Venus Thrombosis in Childbed—*Rieler*, Monatsschr. f. Geburtsh. u. Gynaecol., Bd. XXIV, S. 154.

In two thirds of the cases the temperature remains normal or slightly above normal, while the pulse shows a gradual acceleration. At the same time pain in the inguinal or hypogastric region and meteorism give valuable hints as regards diagnosis. *Cronson.*

Spontaneous Laceration of the Cervix during Abortion and its Forensic Importance—*Blumreichl*, Berliner Klin. Wochenschr. 1907, No. 28.

In abortion the vaginal portion of the cervix may be seriously injured spontaneously simulating criminal intervention. *Cronson.*

Bibliography.

PHYSICAL DIAGNOSIS. *With Case Examples of the Inductive Method.* By HOWARD S. ANDERS, A. M., M. D., Professor of Physical Diagnosis. Medico-Chirurgical College, Philadelphia; Physician to the Philadelphia General Hospital, Tuberculosis Department, etc. With Eighty-eight illustrations in the Text and Thirty-two Plates. New York and London, D. Appleton and Company. 1907.

The statements of the author are clean-cut, he has mastered his subject. This Physical Diagnosis is essentially a student's handbook, but the general practitioner and the medical examiner for life-insurance will find in it many valuable points in diagnosis and, more especially, in differential diagnosis. The special physical diagnosis of some diseases of the respiratory tract,—hypothetical and recorded cases, and of diseases of the heart,—*inductively considered*, to which are devoted the short Sections III. and IV. resp., cannot fail to attract the undivided attention of the future diagnostician. It is a pity that the inductive method in physical diagnosis is not illustrated by more cases. Why has not the author extended the illustrative examples of the inductive method of diagnosis to the diseases of the abdominal organs? Apparently, he is a specialist in diseases of the chest for he has devoted 347 pages to the thoracic organs and the blood-vessels and but 50 pages to the physical examination of the abdomen and its principal organs.

Apart from this pardonable one-sidedness, the author's work deserves unmitigated praise. Illustrations, Röntgenograms, and the printer's work are excellent. H. S.

DYSпноEA AND CYANOSIS. *Part I of Clinical Treatises on the Symptomatology and Diagnosis of Disorders of Respiration and Circulation.* By Prof. EDMUND VON NEUSSER. Authorized English Translation by ANDREW MACFARLANE, M. D., Prof. of Medical Jurisprudence and Physical Diagnosis, Albany Medical College; Attending Physician to St. Peter's and Child's Hospital and Albany Hospital for Incurables. New York, E. B. Treat & Comp. 1907.

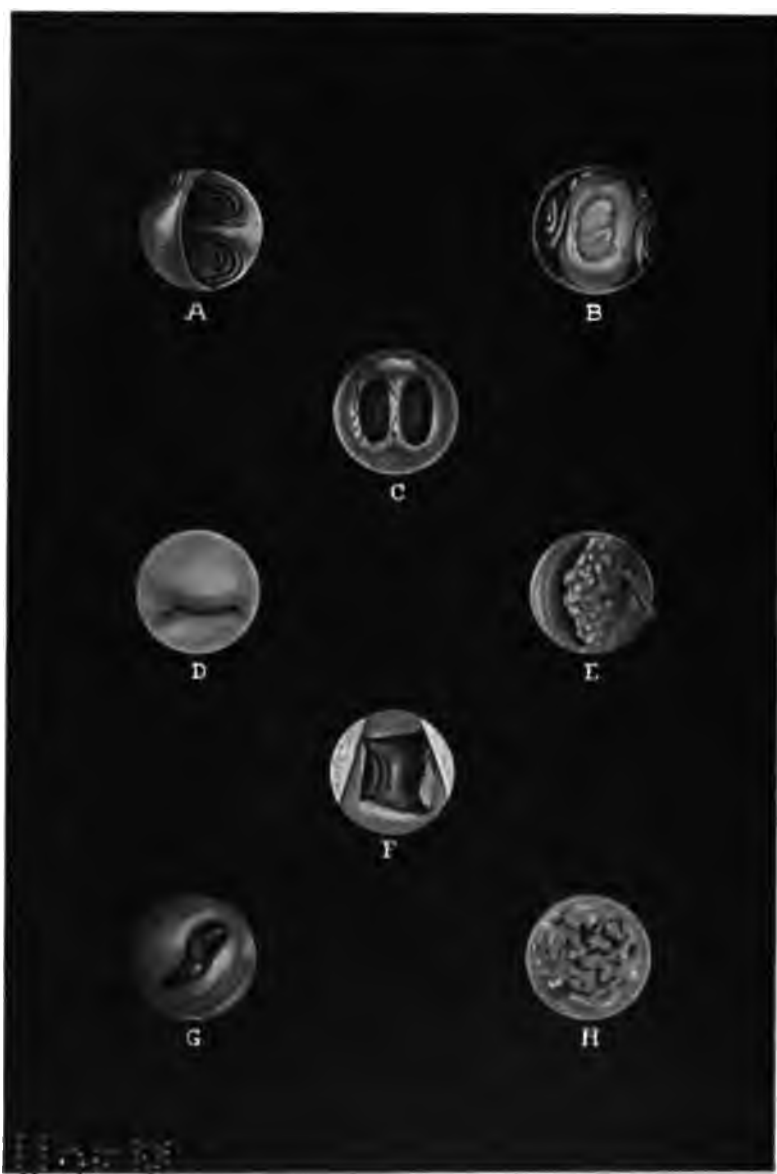
Edmund von Neusser needs no introduction to the progressive medical man. He is one of the great clinicians of our time, an acute observer and investigator at the bedside, a keen diagnostician and an eminent teacher. His treatise on Dyspnea and Cyanosis reflects his immense clinical experience and teaching capacity. It is all practical and readily understood which cannot be said of all

medical monographs that are German-born. The author dwells on the conditions which induce dyspnea and comes to the conclusion that, both, deficiency of oxygen and excess of carbon dioxid are of importance in its causation. Under pathological conditions—at the bedside—both factors are nearly always to be considered, especially in sudden disturbances of respiration. In gradually developing respiratory difficulties, on the other hand, the accumulation of carbon dioxid in the blood should be held primarily responsible. In the other chapters there are considered dyspnea and cyanosis in diseases of the respiratory tract, in congenital and acquired cardiac, and in vascular lesions, in cardiac neuroses, in affections of the alimentary canal, in infectious diseases and in systemic disturbances. Dyspnea and cyanosis due to poisons are treated of minutely in a separate chapter. The last pages are devoted to a brief consideration of the treatment of dyspnea.

There is nothing in this little volume of 203 pages which is not germane to the subject matter, and there is practically nothing of import relating to it that has been omitted.

The translation is done very well; the book is nicely printed and displays the good taste of the bookbinder. H. S.

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BRONCHOSCOPIC PICTURES

illustrating article

The Bronchoscope as an Aid in General Diagnosis, by Chevalier Jackson

A, Bronchoscopic view in normal left bronchus. B, Luetic ulceration of the carina (Case IV). C, Chronic circumscribed tracheo-bronchitis (Case II). D, Thymic tracheostenosis (Case VII). E, Bleeding, fungating ulcer (tubercular?). The red streak indicates a small blood stream. The source of hemoptysis (Case III). F, Influenzal tracheitis. View down the trachea from above the cords, the edges of which show at the sides (Case I). G, compression stenosis of left bronchus. Mediastinal sarcoma (Case VIII). Compare normal, Fig. A. H, Bronchus completely filled with fungating carcinoma (Case referred by Dr. H. Finkelpearl).

THE ARCHIVES OF DIAGNOSIS

A QUARTERLY JOURNAL DEVOTED TO THE STUDY
AND THE PROGRESS OF DIAGNOSIS AND PROGNOSIS

Vol. I

APRIL, 1908

No. 2

Special Articles

THE BRONCHOSCOPE AS AN AID IN GENERAL DIAGNOSIS

By CHEVALIER JACKSON

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It is now ten years since Killian demonstrated the possibility of direct inspection of the larger trunks of the bronchial tree. His methods have been adopted and skilfully practised by a few men in different parts of the world. Only recently has the laryngologist given the procedure the attention and the training its value merits.

As yet the practical application of bronchoscopy has been rather in the removal of foreign bodies than in the broader field of general diagnosis. Only incidentally has it been noted that direct inspection occasionally revealed an important lesion that had escaped inferential diagnosis from signs and symptoms.

With the improved instruments and technic that have been developed by experience, the bronchial tube to its third division is as readily brought into the range of vision as is the sigmoid flexure or the male bladder. There is already firm ground for the hope that the bronchoscope will do even more for general diagnosis than have the cystoscope and the proctoscope.

We have found that important primary lesions of the trachea are by no means such pathological curiosities as has been assumed.

Moreover, tracheal compression is the first positive objective symptom in a number of cases of thoracic aneurism, tumor, thymic hypertrophy and the like.

Observation is not yet extensive enough to rearrange tracheo-bronchial pathology from this point of view. Broad study of these conditions, as well as the treatment, will always remain the work of the internist, but that the laryngologist can be of at least occasional help to him is, I think, demonstrated in the following notes from my case records:

CIRCUMSCRIBED TRACHEO-BRONCHITIS.—By this term I mean an affection differing from the ordinary diffuse bronchitis in that the important lesion is limited to, or at least most marked in, the trachea and larger bronchi. In some instances it is limited to a portion only of the mucosal area of these passages.

ACUTE CIRCUMSCRIBED TRACHEO-BRONCHITIS.—Excellent examples of the acute grade of this affection are rather frequent in the course of influenza, as manifested by the dry, barking cough and severe burning pain back of the sternum. In children an occasional interesting complication is seen in the form of laryngeal spasm, doubtless a reflex from an irritated tracheal mucosa. Some of my cases of this kind have required intubation for the relief of dyspnea.

Case I.—Infant, referred by Dr. Lawrence Litchfield. The parents gave a history of abrupt febrile onset five weeks before, with croupy cough and stridor after coughing and on slight exertion. The temperature was normal but the laryngeal symptoms were increasing. Upon direct laryngoscopy at the Eye and Ear Hospital, April 4, 1908, I found the larynx slightly reddened, but the cords were nearly normal in color, and there was no thickening or edema. I did not deem it wise to pass the bronchoscope lest the intense inflammation might be engrafted upon the larynx, but the 7 mm. tracheoscope was inserted between the cords, propping the glottis open. The appearance was as in Plate I, Fig. F. The tracheal mucosa was reddened, swollen and corrugated, concealing the tracheal rings and showing points of superficial ulceration or rather erosion.

CHRONIC CIRCUMSCRIBED TRACHEO-BRONCHITIS.—The chronic type of this affection is characterized by discomfort, pain, soreness, rawness or burning just behind the sternum. Together with this is more or less dry cough.

A typical bronchoscopic view in such a case is seen in Fig. C. This history is as follows:

Case II.—C. S., referred by Dr. John Dunn, of Richmond, Va. Patient complained of aching back of suprasternal notch, sometimes a raw sensation. These were first noticed after an unusually strenuous use of the voice in preaching a year before. There was some hoarseness and vocal fatigue. Once or twice he expelled a mass of tough dark secretion. Direct laryngoscopy showed a slight chronic laryngitis. March 19, 1908, the bronchoscope was passed at the Eye and Ear Hospital. Appearance was as is shown in Fig. C. In passing it may be said that cases of this kind are curable by topical applications through the direct speculum.

TRACHEO-BRONCHIAL ULCER.—Tracheal ulcer due to tuberculosis or lues is by no means uncommon. I have notes of six cases observed in individual practice in the space of less than two years. If all obscure coughs and chest pains in large general clinics were investigated bronchoscopically as a matter of routine, the number would be indefinitely increased.

Case III.—Mr. M. consulted me Jan. 2, 1908, complaining of spitting of blood intermittently the last six months. Had been spitting continually for a week. He had been examined by one of the most eminent clinicians of America, without receiving a definite diagnosis. Jan. 14, 1908 at the Western Pennsylvania Hospital I introduced the bronchoscope. A thin streak of blood was followed from the inter-arytenoid space down the trachea to its source in the right bronchus, which source proved to be the fungating ulcer shown in Fig. E. The trachea and both bronchi at a number of separate locations were compressed, by some small internal masses, to a scabbard shaped lumen. From this appearance and the evident multiple glandular enlargement, I expressed the opinion that the trouble was tubercular. I am informed that the case has since been diagnosticated carcinoma of the lung. The possibility of such an error having been made must be admitted. We may mistake a bronchial lesion just as we are occasionally in error in regard to the nature of a skin or throat ulcer. In a similar case I would advise biting out two bits of tissue—one for microscopic examination for evidence of cancerous tissue or *Spirocheta pallidum*, the other for inoculation of a guinea pig. This is frequently done in the esophagus without harmful

result, and the procedure is certainly equally free from risk here.

Case IV.—Mr. X., referred by Dr. H. F. Kimmel, with a history of choking on a tooth-pick four weeks before. Since that had had constant cough and a sensation as of something sticking in the larynx. Bronchoscopy at the Eye and Ear Hospital, Nov. 5, 1907. No tooth-pick was found, but the carina had disappeared, being eaten away by the large ulcer shown in Fig. B. The appearance of the ulcer was so distinctive that without other examination I made a diagnosis of luetic ulceration of the trachea, and upon communicating with the family physician, Dr. Kimmel, I learned that he had treated the patient for an initial lesion four or five years before.

TRACHEAL ULCER. Case V.—N. W. was admitted to South Side Hospital in the service of Dr. John W. Boyce, suffering from severe pulmonary hemorrhage. Moist rales were heard on the right side of the chest and the hemorrhage was assumed to come from a tubercular lesion. Sputum examination was negative; as was also the tuberculin test, both under the skin and in the conjunctiva. As there was a dubious specific history, Dr. Boyce put the patient on mixed treatment with resulting improvement. Feb. 26, 1908, Dr. C. C. Sandels passed the tube and found a healthy granulating ulcer in the right bronchus. It would not, at this time, have been possible to diagnosticate the nature of the ulcer by the appearance. Perhaps we might have done so before treatment. The patient was soon after discharged from the hospital for insubordination and drunkenness. Dr. Boyce has at present lost sight of him, but expects him to turn up later with a bronchial stricture.

TUBERCULOSIS.—Through the courtesy of Dr. W. C. White, Director of the Pittsburg Sanatorium, I have had the opportunity of examining several tubercular cases. By request of Dr. White, examinations were limited to obscure cases where there was reasonable hope of the bronchoscopic view being of immediate service in the treatment of the case. Specimens of sputum were removed through the bronchoscope on the bronchoscopic sponges, uncontaminated with secretions of the mouth. These specimens were used for laboratory examination, for culture, inoculation and immunization experiments.

It would be well if some bronchoscopist were to examine a series of typical tubercular lesions in different stages, to establish a stand-

ard of bronchoscopic appearance in tracheo-bronchial tuberculosis.

In two cases I found the membrane a bright red, growing more intense as we approached the smaller branches. From these, all over both lungs, abundant purulent secretion was pouring. This is not the condition I had *a priori* expected to find, except possibly where the tubercle was of the very diffuse fibroid type.

One of these cases has been diagnosticated by the majority of the physicians who have seen her, simple purulent bronchitis. Of the other the history is as follows:

Case VI.—Daniel H., aged 45 years, gave a history of having a "bad cold" when six months old, from which he never completely recovered. He had been coughing and expectorating ever since he can remember. Last May he had a radial artery severed and lost a great deal of blood. The following month he had "grippe" and later "typhoid pneumonia." He said he was in bed seven weeks, and did not begin to feel well until six months later. During this time he spat blood. Tubercle bacilli were demonstrated in his sputum after entering the Sanatorium. Under treatment the bacilli disappeared; he gained 25 lbs. in weight, and his general condition improved in proportion. On the Sanatorium record I find the following comment:

"There was not, however, a corresponding decrease in the amount of expectoration, which is [after ten months' treatment] about the same as on admission."

This history certainly is compatible with the suggestion that the case was essentially a purulent bronchitis; that he acquired and was cured of a tubercular infection as an incident; that the bronchoscopic appearance at the time of examination is to be recorded as that of purulent bronchitis and not that of tubercylosis.

In two other tubercular cases examined, the bronchoscopic appearance showed a pale mucosa with pus in some of the smaller bronchi. In one case an abscess cavity was located communicating with the right middle lobe bronchus.

TRACHEAL STENOSIS.—Bronchoscopic work shows that moderate stenosis of the trachea from compression is quite frequent. Instances have been noted above in the discussion of tracheal ulcer. Indeed the beginner in bronchoscopy must beware of attaching too

great importance to moderate compression by mere glandular enlargement which is incident to a great many affections. The cause of the enlargement in this has not been definitely determined, but it is questionable if these glands had anything to do with the patient's symptoms.

It is probable that bronchoscopy will repeat the history of the Roentgen ray—aneurisms will seldom be overlooked, but will often be diagnosticated when absent. The ordinary normal aortic impulse is most astonishing. It is only after repeated examinations that one grows accustomed to it. Any thoracic tumor compressing the bronchus may show a transmitted pulsation. In one case, a woman of 50, there was distinct stenosis from external pressure, with an impulse that seemed expansile rather than merely transmitted. Study of the symptoms practically negated the suspicion of aneurism. The patient was a neurasthenic and had the palpable relaxed abdominal aorta so common to that class. (Boyce.) It seems highly probable that her bronchial compression was due to a similar condition in the thoracic aorta.

Case VII.—Earl L., examined at the Western Pennsylvania Hospital, service of Dr. Ogden M. Edwards. The case has been reported in detail.¹

It is sufficient to say here that the bronchoscope showed plainly a scabbard trachea (Fig. D); that passage of the bronchoscope below the hypertrophied and engorged thymus gland relieved all symptoms; and that the child showed no signs of illness or diathesis while wearing a tracheotomy tube made, from bronchoscopic measurements, to reach the bifurcation. The child recently died of measles, about two years after thymectomy. Autopsy was of considerable interest, but showed nothing relevant to our present consideration except that it absolutely negated any theory of "status lymphaticus" in this case.

Thymic hypertrophy has given rise to a great deal of literature based on the postulate that a soft organ like the thymus gland could not produce fatal tracheal compression, and that, after sudden death, autopsy did not show a compressed trachea. Actual observation of "status lymphaticus," of "hyperthymization of the blood" and the

¹Journal American Medical Association, May 25, 1907.

like, is of course still valid. But a single bronchoscopic observation has rendered much theorizing obsolete.

Case VIII.—Mr. J., aged 48, was referred to me for bronchoscopy by Dr. E. B. Haworth. The patient complained of slight pain in the chest, cough and slight expectoration, since influenza, two months before. The patient's weight was about his average normal 195 pounds. Dr. Haworth reported the physical signs and laboratory reports negative. Bronchoscopy at the Eye and Ear Hospital, Nov. 29, 1907, showed the trachea deviated to the right, the bifurcation and the left bronchus compressed to scabbard form (Fig. G). There was also a slight chronic inflammation which may have followed the influenza, but the compression stenosis, being all evidently from one mass, could only be tumor or aneurism. A radiograph by Dr. Russell H. Boggs showed the tumor which ultimately was fatal, and which proved to be sarcoma.

A case of thoracic lympho-sarcoma in a later stage, examined at the Allegheny General Hospital, showed so great an obliteration of the tracheal and bronchial lumen that it seemed incredible that the patient could inspire sufficient air to sustain life.

In conclusion, the author begs to call the attention of clinicians to the following conclusions:

1. One more region of the body has been added to those in which inferential diagnosis can be supplemented by direct inspection.
 2. This direct inspection gives all the certainty of actually seeing.
 3. It can be done under local anesthesia in a few minutes.
 4. When skilfully done it is absolutely harmless.
 5. Direct laryngo-bronchoscopy renders the differential diagnosis of laryngeal diseases in infants and children a certain procedure: whereas the laryngeal mirror was of little use in this class of cases.
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MISLEADING FACTORS IN AORTIC REGURGITATION

By CHARLES LYMAN GREENE

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While in general one may accept the oft-repeated statement that aortic regurgitation is a frank lesion, there is too little said in our text-books concerning the misleading findings occasionally encountered, and far too little emphasis placed upon the value of secondary signs.

The student is taught to expect in all cases a long-drawn diastolic murmur of the classical location and transmission, together with jerking peripheral arteries, Corrigan pulse and marked enlargement of the left ventricle. On the other hand he is taught that a capillary pulse is encountered in many other conditions and is not sufficiently impressed with the importance of a modified second carotid tone. Practical experience has satisfied the writer that any such teaching is productive of a large amount of error and he would adduce the following cases as confirming his belief.

Case I.—Trained nurse, æt. 30. Complained of rheumatism involving the ankle. The attack was trivial, the temperature did not exceed 99.5° , and prompt subsidence followed the usual treatment. About one week later the patient complained of slight oppression over the sternum. The cardiac outline was normal, no murmurs were heard, but *the second sound in the carotids was scarcely audible, and there was a well-marked capillary pulse.* About three days later the same conditions were present, together with a well-marked presystolic rumble. On the day following one could hear a phantom-like diastolic murmur at the third left chondro-sternal articulation, conducted down the sternum, and the presystolic rumble had disappeared. A week later the murmur was absent and the presystolic rumble present. The patient then passed from observation for three months. When next seen she showed a well-defined aortic regurgitation with the usual group of objective symptoms, but was entirely free from subjective

disturbance, nor did the heart show any marked change in outline upon fluoroscopic examination. When again seen after six months no murmurs of any kind and no secondary signs were discoverable. Inasmuch as the case had been under examination but a short time before and a normal heart demonstrated, I feel that one saw the valvular lesion in its incipiency. It is evident that the lesion would have been overlooked but for the abnormal character of the carotid second sound and the capillary pulse. No arterio-sclerosis was demonstrable.

Case II.—J. W., capitalist, æt. 50. Complained of extreme nervousness during previous two years, attacks of palpitation, marked psychasthenia. Gave a history of repeated mountain trips associated with hard climbing at high altitude and pack carrying. During last trip was at altitude of 8,000 feet. Experienced marked sternal oppression, sense of weakness, and recurring dyspneic periods. Physical examination revealed a soft short systolic murmur at apex, not transmitted. The aortic second sound seemed to be reduplicated, the second sound was inaudible in the carotids; the capillary pulse was marked, radial pulse of indeterminate water-hammer type. Systolic pressure 170. Diastolic 90. Urine wholly negative, blood normal. Left cardiac border about 2 cm. beyond the nipple line.

This case has remained under observation over a period of several months, and the predominating type of murmur has been of a sort to suggest merely a harsh and reduplicated second sound at the third left cartilage. At times it has been clearly heard as a short diastolic murmur and is somewhat intensified when digalen is administered.

Under systematic treatment the aortic second sound is much more clearly heard in the carotids, and the capillary pulse has become barely perceptible in the lips. Arterio-sclerosis is apparently lacking.

Case III. well illustrates the vagaries of the murmur in the early stages of the disease.

R., æt. 38, laborer, admitted January 13, 1908, with acute articular rheumatism. Heart normal, sounds normal in carotids. On the 22d an aortic diastolic murmur was present with a faint capillary pulse, a fairly well-defined Corrigan pulse and moderately intense pistol shot sound in the femorals. Cardiac outline but slightly affected. On February 3d a mitral systolic murmur was superadded.

On March 8th the diastolic aortic murmur was loud and all secondary phenomena present in typical form and degree. On March 24th no murmurs whatever were audible, and all secondary signs were lacking save that the second sound in the carotid was barely audible. No evidence of any marked aortic signs. At the present writing there are no arterio-sclerotic changes. Second sound is clear, the mitral murmur distinct and the pulse markedly irregular.

Case IV.—Mr. K., farmer, æt. 55. Complains of pain in left side, sometimes radiating to the neck and left arm; urine shows trace of albumin, with granular casts; blood pressure: systolic, 150; diastolic, 90. Gastric findings show hypermotility with achylia; heart shows slight enlargement of the left ventricle. The second sound is clearly heard in the aortic area; there is no visible peripheral pulsation in the larger arteries, but a distinct capillary pulse. A most careful examination failed to reveal any murmur at the first sitting, whatever the position assumed by the patient, with or without antecedent exercise. Following the administration of digalen for 48 hours a soft but distinct murmur was audible at the third left interspace and the ensiform, but not in the aortic area proper. This murmur was distinctly diastolic in time, and was unaffected by jugular pressure (i. e., was not a venous bruit).

The patient then disappeared from observation. The persistent second sound in this case conforms to the experience of many other writers in dealing with cases in which arterio-sclerosis is a factor.

Case V.—W., æt. 65. Has for several years carried a mitral regurgitant lesion and an aortic stenosis, with a trace of albumin and a few casts, with from time to time marked evidences of partial in-compensation. No diastolic murmur was ever discoverable, though examinations have been frequent and were carefully made. Blood pressure had previously never exceeded 150. Following an absence of several months patient presented himself with a systolic blood pressure of 230 and typical signs of aortic leakage, save that peripheral pulsation was not marked. Under iodides and dieting the murmur promptly disappeared with marked subsidence of pressure, together with the secondary signs. The murmur in this case was undoubtedly due to the high pressure opposed by an already crippled valve and will doubtless reappear.

Reviewing these cases I feel that one is justified in saying (a)

that temporary aortic leakage is not as uncommon as is usually held by our clinicians. (b) That more attention should be paid to the atypical forms which a murmur may assume. (c) That the capillary pulse is the most constant sign and that its frequency in other lesions is probably greatly overestimated by reason of the fact that an existing aortic regurgitation may readily be overlooked. (d) That a capillary pulse in neurasthenic cases is frequently attributed to the neurasthenia rather than to its true cause. (e) That a modification or absence of the second carotid tone is a most valuable and constant sign in cases unassociated with marked arterio-sclerosis. (f) That no examination having reference to the integrity of the heart is complete unless the carotid tones and capillary pulse are carefully investigated.

THE HEART LESIONS OF INFANCY AND CHILDHOOD

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The examination of the child's heart presents no greater difficulty than the examination of the adult's. Cardiac percussion in children is a more favorable procedure than in adults, because the relative dulness can be easily and accurately determined. This is possibly owing to the thinness of the chest wall, as well as to the fact that the heart is not yet covered with lung to such an extent as in adults. In consequence of this relationship of the heart to the chest wall, it is evident that the younger the child, the more precisely can the relative dulness be determined. The pathological changes which occur in the child's heart are simpler than those in the adult. This is to be explained in various ways. The heart is more tolerant of disturbances in general nutrition during the period of early life than it is in later years, and also the blood-supply to the young heart

is so favorably provided for that chronic inflammation of the muscle and fatty degeneration are of rare occurrence.

To illustrate the great resistance of the heart muscle of the infant, the studies of Ohlmüller (from Hochsinger, *Die Auscultation des kindlichen Herzens*) are of interest. This author showed that the severe infantile atrophies, though causing great loss in weight in the individual tissues and organs, and even reducing the body to a skeleton, cause no change in muscle. This organ does not lose in weight, and shows little or no degenerative changes. Fatty degeneration and brown atrophy are seldom found in the child's heart. The most important causal factor in the production of cardiac degeneration, namely, the diseases of the coronary arteries, are rarely present in children. The various toxic agents, as alcohol, lead, and tobacco, play no part in the production of the cardiac degenerations in childhood. The heart of a child is relatively larger than that of the adult, whereas the arterial system is relatively wider; in consequence, the blood-pressure in the aorta is less. As a result of this difference, the labor of the heart, as well as the strain which it sustains, is less. Compensation can more readily take place at this time than in later life. At about the time of puberty the arterial system diminishes in caliber, though the heart remains relatively larger.

AUSCULTATION.—In examining the child's heart, it is a good rule to place the child in an erect or sitting posture. The heart tones can be more distinctly heard in this position, because the organ is nearer the thoracic wall. This is particularly important if murmurs be present. The heart tones of children differ from those of adults in that the accent is upon the first tone. At the period of puberty the second tone becomes accentuated. The second pulmonary tone may become accentuated if the child is excited, but the accentuation should not be considered pathological unless this tone is constantly accentuated. Not infrequently one observes that there is a difference in the acoustic intensity of the tones at the beginning of the examination. When the child becomes accustomed to the manipulation, it usually becomes quiet, and this difference is not observed. On account of the thinness of the chest wall and the favorable conditions for the transmission of sound in the child's thorax, the heart tones are heard louder than in later life. For the same reason the heart tones may be heard over the back, over the abdomen, and the

abdominal viscera, including the liver and the stomach. This sound transmission to distant regions is particularly marked if the heart's action be excited by restlessness or by pathological conditions.

HEART MURMURS.—Accidental heart murmurs, though they occur in early childhood, are not of such common occurrence as in later life. After the fourth or fifth year of life they may occur the same as in adults. The murmurs caused by endocardial inflammation are, as a rule, not rough, but soft, short, and blowing. The murmur is not always heard at the point where it originates. Thus it is common to find the mitral systolic murmur of insufficiency over the pulmonary area.

ETIOLOGY.—In my dispensary service, I recently studied twenty-two cases of endocarditis. Two cases occurred between the first and fifth year; eight cases occurred between the fifth and the tenth year; eleven cases occurred between the tenth and the fourteenth year; four were males and eighteen females.

PREVIOUS OR CONCOMITANT DISEASE.—Acute rheumatism was noted in two cases, rheumatic pains in ten, tonsillitis in six, chorea in two, scarlatina in nine.

Mitral regurgitation occurred in fifteen cases; mitral regurgitation and stenosis occurred in four cases; mitral regurgitation and aortic regurgitation occurred in one case; and mitral stenosis occurred in one case.

The most important factor in the production of endocardial and pericardial inflammation is undoubtedly rheumatism. It is a well-known fact that rheumatism is not always diagnosed in children; many of the vague pains from which they complain are rheumatic in character. The inflammation of the valve or of the pericardium may occur with a rheumatic arthritis, a chorea, or the so-called subcutaneous nodules may be the only evidence of a rheumatic condition. So frequently is cardiac inflammation associated with this disease that Cheadle was led to declare that *cardiac inflammation was not a complication but a manifestation of rheumatism*. Acute follicular tonsillitis bears a close and undoubted causal relation to endocardial inflammation. Scarlatina is a frequent cause of endocarditis and pericarditis. Pneumonia plays no small rôle in the production of heart inflammations. The other acute infections, as typhoid, measles, and variola, are only rarely causative factors.

Gonorrhea, which is comparatively rare in children, does not have the importance in the production of this variety of inflammation that it has in adults.

In my series of cases observed at the dispensary, scarlatina seemed the etiological factor in nine cases. This is a large percentage, and is to be explained by the fact that scarlatina has been very active in the neighborhood of this dispensary.

CLINICAL COURSE.—In the children's ward of the Michael Reese Hospital records of fifty cases of heart disease were studied. It is noted that mitral insufficiency was observed eleven times; mitral insufficiency and stenosis eighteen times; myocarditis twice; acute endopericarditis eleven times; congenital heart disease three times; exophthalmic goitre with mitral insufficiency once; aortic insufficiency and stenosis once; aortic and mitral insufficiency once; dextrocardia once; mitral insufficiency and stenosis with tricuspid insufficiency once.

Undoubtedly the most striking fact in connection with this record is the unusually large number of cases of pericarditis which occurred. This is somewhat at variance with the observations of others. Whether it depends upon the fact that the most severe acute cases are brought to the hospital or whether it is a mere coincidence, it is difficult to determine.

HISTORY OF A CASE OF PERIENDOCARDITIS.—B. S. —, female child, aged eight years, was admitted to the children's ward December 4, 1900. About four months ago she complained to her mother of moderate pains over the joints; no swelling was observed. At about the same time the child complained of being short of breath. The dyspnea became more marked upon exertion. She has grown much worse during the past week. Fever, headache, and precordial pain have been noted. The mother reports that the appetite has been lost; that there has been a short, annoying cough; the bowels have been constipated. The patient had measles when she was five years old.

Examination: The child is very anemic. Dyspnea is marked. The precordial region is prominent and bulging. Palpation of this area gives the impression to the examining hand of a purring sensation. The apex beat is indistinct, and is dislocated outward, lying external to the mammary line. The upper border of the heart is in the second intercostal space; the right border extends to the right margin of the sternum; the left border lies just outside the mammary line. The auscultation reveals a loud and characteristic friction rub over the precordial area; it is heard best over the middle of the sternum. A systolic endocardial murmur is heard at the apex. Over the lower left

lobe and in the axillary region tubular breathing is heard; percussion over this area gives flatness. The child's temperature remained constantly high, varying between 101 and 104 degrees F. It was noted that the precordial area increased in size from one examination to another. Dyspnea and cyanosis became more marked, and on the eighteenth day after admission to the hospital the child died.

The autopsy, made shortly after death, showed a heart in which the pericardial sac was almost obliterated; fresh adhesions united the pericardium to the heart. These could be readily broken up. The surface of the heart as well as the inner surface of the parietal pericardium was covered with fibrous ridges, giving to both a rough and uneven surface. The heart was very broad as the result of the dilatation, and its texture was soft. Incision into the myocardium gave unmistakable evidence of inflammatory and degenerative changes. Fresh vegetations were observed on the mitral and aortic valves.

DISCUSSION OF PERICARDITIS.—This case is of great interest because it illustrates the course of a case of typical acute pericardial inflammation. The friction rub was present very early in the case. It disappeared gradually as the area of cardiac dulness increased in size. This increase in the area of dulness is not infrequently due to pericardial effusion. In a majority of the cases of rheumatic pericarditis, however, the increase of the precordial area indicates cardiac dilatation and not pericardial fluid. Lees and Poynton (quoted from Broadbent) in a joint paper read before the Medical and Chirurgical Society in June, 1898, drew attention to the acute dilatation of the heart that occurs in rheumatism and chorea of childhood. From analysis of 150 cases of fatal rheumatic heart disease in childhood, they showed that cardiac dilatation is usually present, and a marked excess of pericardial fluid is very rare; in only twelve cases out of 150 was there excess of pericardial fluid amounting to more than two ounces. Ewart has called attention to the physical sign which, when present, is indicative of considerable pericardial effusion—that is, a circumscribed patch of dulness or impaired resonance occurs just below the angle of the left scapula, over which there is increased vocal fremitus, bronchophony, and bronchial breathing. This condition according to Ewart is brought about by a compression of the lung by the pericardial sac. But the accumulation of fluid in the left pleural cavity could, and I believe frequently does, give rise to this physical condition. In this way the dulness and bronchial breathing may be frequently explained.

At the hospital my assistants and I have frequently noticed this sign, though the condition has undoubtedly occurred in those cases of pericarditis with extreme cardiac dilatation and a minimal amount of fluid.

SYMPTOMATOLOGY.—The disease may sometimes be overlooked in children. It is not infrequently preceded by nervous symptoms, such as night terror, crying and walking in the sleep, and delirium. The respirations are hurried, the face is anxious, precordial pain is frequent, difficulty in swallowing is present at times. Vomiting may occur, and is to be regarded as a serious symptom and of grave omen. Dyspnea may become urgent, not only in those cases where fluid is present, but also where active dilatation and pericardial adhesion is going on.

COURSE OF THE DISEASE.—In some cases death occurs early in the disease. These are most frequently the cases where cardiac dilatation occurs rapidly. In some cases the fluid is so great in quantity that the cardiac embarrassment must be relieved by the aspiration of fluid. In other cases the pericardium becomes adherent to the heart. Children who are left with a heart in this condition are pale, anemic and dyspneic. The heart muscle in these cases is always more or less damaged, and the pericardial sac more or less obliterated. In some of the cases the cardiac dilatation continues until passive congestion of the viscera with dropsy occurs; such a condition indicates a failing heart, and a fatal termination speedily ensues. Valvular lesions are very frequently associated with the acute pericardial inflammation. Vegetations varying in size are found upon the valve.

CLINICAL HISTORY OF A CASE OF ACUTE ENDOCARDITIS, MANIFESTED BY AORTIC INSUFFICIENCY.—J. C. —, aged twelve years, was admitted November 26, 1900. The disease began nine days before, when patient was taken ill with fever, nausea, violent headaches, vomiting and abdominal cramps. On the following day patient began to cough, complained of shortness of breath, pain and distress in the precordial region. The fever was most marked at night; he was subject to rheumatic attacks, though he is said never to have had the articular variety.

Examination: The apex lies in fifth interspace, external to the mammary line; it is diffuse and lifting in character. The upper border of the heart extends to the second interspace, the right border to the right edge of the sternum, and the left border to the apex. Upon auscultation one hears a loud

though soft diastolic bruit over the aortic orifice; it is heard with equal intensity over the manubrium of the sternum. This murmur is transmitted into the carotids, as well as downward over the precordial area. A systolic murmur accompanies the diastolic. The pulse shows typical waterhammer variety, and the capillary pulse is readily elicited. The right hand and wrist are swollen and painful, and motion is limited. The temperature on admission was $100 \frac{2}{5}$ degrees F., the respirations 32, and the pulse only 90. The fever continued for about three weeks. After this time the temperature fell to normal. The rheumatic pain and swelling noticed on admission was limited to the right hand and wrist. It spread in a few days to the shoulder of the same side. The dyspnea was marked; the little patient became breathless and cyanotic upon the slightest exertion in bed. The general condition of the patient gradually improved. He was kept quiet in bed for three months, and shortly thereafter discharged from the hospital, with the murmurs practically unchanged though the heart was in perfect compensation, and the patient without subjective symptoms.

DISCUSSION OF ENDOCARDITIS.—In studying cases of endocarditis, we find that the condition naturally divides itself into three periods, that of acute inflammation, of compensation, and of heart failure. The symptoms of the acute condition are analogous to those observed in adults. The most important data for the diagnosis are derived from the physical examination, particularly auscultation. Endocarditis develops in the majority of cases during an attack of rheumatism. The auscultatory signs do not appear at once. The valves do not become insufficient or stenosed immediately; hence the murmur does not appear until after the lapse of a short time, at such time when the pathological process is established. Heart palpitation or a fresh exacerbation of fever frequently marks the onset of the disease in children. Older children frequently complain of pain in the region of the heart or of dyspnea; the respirations are increased; the pulse is rapid, or it may in some instances be irregular. Upon auscultation one is impressed with the fact that the first tone is muffled and not sharply outlined. Very soon, however, a distinct blowing murmur is heard, which is soft and is usually systolic in time. In a few cases the murmur may be rough from the very onset. Its point of intensity is most often at the apex. Systolic murmurs over the aortic orifice, as well as pre-systolic murmurs over the apex, are very rare. Murmurs occurring primarily over other cardiac ostia are not commonly observed. A marked reduplication of the second sound at the apex is to be regarded as strong evidence of an impending

ing endocardial inflammation. Gradually the murmur, whatever its primary nature, increases in intensity, and takes on the character of a chronic valvular affection. At first the percussion shows only a slight deviation from the normal, but as the valvular function becomes permanently interfered with, the heart increases in length and breadth. The temperature which is nearly always present in the acute cases follows no fixed type.

THE PROGNOSIS OF ENDOCARDITIS IN CHILDREN.—In early childhood acute rheumatic endocarditis offers a grave or serious prognosis, because the condition is so frequently associated with pericarditis. This latter condition, as has already been shown, leads to rapid cardiac dilatation, myocardial inflammation, and adhesion between the heart and pericardial layers. In a word, the mechanical function of the heart is interfered with, and the organ itself is subjected to serious degenerative changes. Recurrent attacks of inflammation at the affected valve are frequent. Each new attack cripples still more the heart valve and renders the prognosis more unfavorable. The growing child makes great demand upon the heart. If the heart be diseased so as to bring about a condition of hypertrophy, it is very evident that the disease, plus the usual demand upon the heart, speedily overtakes it, and tends to a loss of compensation.

The prognosis depends not a little upon the severity of the original lesion. If the original lesion of the endocardial involvement at first is slight, it follows that the resulting lesion remains slight. On the contrary, however, if the primary involvement is a severe one, greatly crippling the valve or valves, dilatation and hypertrophy follow, and the mechanism of cardiac compensation will soon be lost. In some cases the valvular lesion remains for a long time stationary. If there be no recurrent attacks of rheumatism, and if there be no degenerative or inflammatory changes in the heart muscles, or of the endocardium, compensation may remain for a long time undisturbed, and the patient may go about making the impression of being in excellent health. The habits and mode of life influence the progress of the disease. The child who can be controlled in its mental and physical activity, and who can be brought under the most suitable conditions of hygiene and environment, has better chances to struggle against the disease than one in whom these conditions cannot be regulated.

Intercurrent diseases may influence the course of the disease; severe anemia, bronchitis, nephritis, pneumonia, or any of the acute infectious diseases, tend to exert an unfavorable influence upon the cardiac affection. It is important, so far as the prognosis is concerned, which particular valve is involved. Walshe arranges the valvular affections in order of their relative gravity as follows:

1. Tricuspid regurgitation.
2. Mitral regurgitation.
3. Mitral stenosis.
4. Aortic regurgitation.
5. Pulmonary stenosis.
6. Aortic stenosis.

Broadbent arranges them, with respect to their relative gravity, as follows:

1. Aortic insufficiency.
2. Mitral stenosis.
3. Aortic stenosis.
4. Mitral insufficiency.

Without entering into a detailed discussion of the relative gravity of the various valvular affections, it seems a matter of common experience that after the condition has become chronic the mitral insufficiency causes less strain upon the cardiac mechanism, and is the least to be feared of all the valvular affections.

Can recovery occur after acute endocardial inflammation? There can be no doubt that many individuals who have suffered in childhood from rheumatic endocarditis have apparently recovered. In those cases where the inflammation was slight, and the injury to the valve not great in extent, perfect compensation may continue for years without causing the patient any subjective disturbance, and indeed the objective cardiac symptoms may disappear.

PROGNOSIS IN PERICARDITIS.—The prognosis in pericarditis is grave; death may occur during the acute illness, or owing to the associated endocarditis and to the pericardial adhesions. The ultimate chances for a long life are unfavorable; repeated attacks of rheumatism with pericarditis darken the prognosis.

THE MEASUREMENT OF HUMAN BLOOD PRESSURE

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The measurement of blood pressure in the living individual has assumed great clinical importance in the last few years. The problem is one that lends itself particularly to laboratory studies, but which it is equally important to extend to clinical work. At first physicians were balked by the apparent impossibility of estimating blood pressure in a living individual without operative procedure to connect the blood stream with some instrument of measurement. However, it is found that while it must be acknowledged that extreme accuracy can only be obtained by direct means, still sufficient uniformity of results is obtained by indirect methods.

The gradual development of the clinical examination of blood pressure has brought us to the point where it is generally acknowledged that the most convenient and accurate instruments are those which measure intravascular pressure by the elastic compression necessary to stop the pulse wave in the brachial artery. So in discussing methods we shall simply touch upon those founded upon other procedures.

The earlier form consisted of an instrument to obliterate the pulse by means of a small flexible bag which was placed over the artery to make compression and then measuring the pressure in the little bag through a connection with a mercury manometer or a manometer of some other form. Though still extensively used in the form of the von Basch instrument, it does not hold the confidence of very many careful observers. Another method is by the pressure necessary to change the color of the skin and is chiefly known at the present time in the Gärtner Tonometer. Superseding all these has been the method of circular compression by air which is credited to Riva-Rocci and Hill. This is familiar to us all in the Riva-Rocci and Janeway instruments.

Our own method consists in the circular compression of the arm by water and the regulation and measurement of this compression by

raising and lowering a soft rubber reservoir to measured heights. It is found that the pressure in the cuff accurately corresponds to the height of the reservoir and that this height gives an indication of the blood pressure when the pulse wave is just obliterated.

The simplified instrument as suggested by me consists essentially of a red armlet 15 centimeters wide and 40 centimeters long,

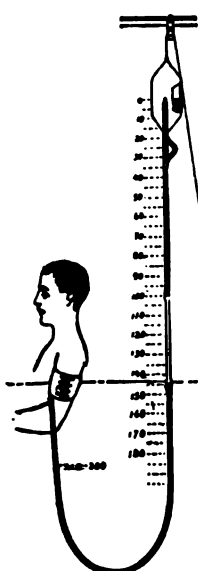


Diagram showing
Hydrostatic Principles

made of strong material. This armlet or cuff differs from the Riva-Rocci armlet in its greater width and in the fact that the rubber bag occupies only a part instead of the whole circumference of the armlet. The advantage of this latter arrangement is that the rubber bag when expanded compresses the artery against the bone rather than surrounds the whole arm, which proved to be painful. Connected with the cuff is a red rubber tube 203 centimeters long. To this is connected a white tube 60 centimeters long and to this a blue tube and a blue bag, measuring to the centre of the bag 136 centimeters. Connected to the blue bag is a cord passing through a pulley of special construction. This pulley is so constructed that it can easily be hung at a height by means of a cane or similar implement. A special scale is attached to the bag at the level of its contents and is used to measure the height of the bag above the patient's heart as hereinafter described. The instrument can be

rolled up and carried in the pocket and is used as follows:

The tube is separated at one of the connections between the different colored tubes and the air is drawn out of the two bags by suction, by placing the ends of the tubes one at a time in the mouth. The bags are now placed on the floor and the ends of the tubes plunged in a basin of water and about 12 ounces (360 c.c.) allowed to siphon into the bags. The ends of the tubes are now rejoined under water so that no air can enter. The red cuff is now lifted up so that all the water runs into the blue bag which is left on the floor. Then the armlet is placed around the arm of the patient in such a manner that the part containing the bag comes on the inside of the arm. The pulley with the cord through it is now attached high up to

a picture molding or some other convenient object, and the bag is hoisted slowly until the pressure of water that flows back to the cuff has compressed the artery and obliterated the pulse at the wrist. To find the exact point at which this takes place it is better to lower the bag until the pulse is distinctly felt again, and then raise it two inches at a time, counting ten beats of the pulse each time until the pulse disappears. If at this point the white tube is opposite the level of the patient's heart, or the level of the cuff, which is practically the same, having the patient in a sitting position, the patient's blood pressure is within normal limits. If the blue tube is opposite this level, the patient has a sub-normal blood pressure. In order to measure the blood pressure in terms of millimeters of mercury, the special scale is attached to the blue bag at the level of the water in it, when the apparatus is in operation, and the figure on the scale at the level of the heart when the pulse disappears indicates the blood pressure in millimeters of mercury.

The pressure in healthy persons of good constitution is as follows :

Children	85-110
Adults	100-145

I have tested this apparatus with all kinds of cases and compared them with the standard instruments and found that its readings were correct. I find that a closer reading is often possible with this instrument than with the other instruments on account of the absence of fluctuations and the greater length of the scale. This is especially true in low and very high pressure cases. The instrument is particularly convenient for detecting the cases of blood pressure that fall into my classification of blood pressure cases, into primary low pressure cases, high pressure cases and secondary low pressure cases. It can be used with accuracy up to three three hundred and twenty-five or more millimeters, which is usually impossible with the air-mercury instruments. In these unusual cases by using the instrument where there is a stairway or in a very high ceilinged apartment, the necessary elevation of the pulley is obtained.

SOME POINTS ON THE DIFFERENTIAL DIAGNOSIS BETWEEN GASTRIC INSUFFICIENCY DUE TO STENOSIS AND THAT CAUSED BY FATIGUED MUSCLE

By FENTON B. TURCK

Chicago

Gastric muscle fatigue may result from overwork due to stenosis of the outlet of the stomach, or from overwork produced by persistently overloading the stomach. The two conditions differ materially from the standpoint of diagnosis and treatment. The one is a pathological condition to be considered and treated by surgical means; the other to be considered from a physiologic standpoint and to be corrected by physiologic methods.

No more difficult problem of differential diagnosis presents itself to the clinician than to distinguish between these two conditions.

The retention of food in the stomach beyond the normal time has been too often regarded as due to some obstruction, usually pyloric. Sahli (*Diagnostic Methods*, page 414) is of the opinion that pyloric stenosis is much too frequently diagnosed as such—that a delay in the emptying of the stomach may be nothing more than Von Mering's reflex (neurosis), or than a slight insufficient motility. If we are justified in saying that a case is one of pyloric stenosis because of the presence in the gastric contents of food taken the day before, then we have seen hundreds of cases of pyloric obstruction permanently cured without surgical interference.

The diagnosis of gastric insufficiency involves another factor as well; that is, whether the atony is really of gastric origin and not to be referred to the intestinal muscularis.

An accurate knowledge of the clinical conditions cannot be obtained without careful consideration of the physiology of the gastric movements.

The gastric muscle seems to have an inherent power of rhythmical contraction independent of the central nervous system. Pawlow and Ducheschi have observed that section of the vagi, in the dog, cat and other animals, does not hinder the peristaltic action of the gastric muscle. If nicotine or cocaine be painted over the gastric

mucosa, thus paralyzing Auerbach's plexus and blocking the local nerves supplying the muscle (mucosa irritation is conveyed to the muscle through the delicate nerve fibrils of Meissner's plexus, which in turn is a branch of the muscle plexus of Auerbach), the movements of the antrum are not affected (Bayliss and Starling). Magnus found that by pulling off the outer layer of intestinal muscle, spontaneous rhythmical contraction would continue if the ganglion cells were left intact; but if not, artificial stimulation would excite contraction.

These observations go to show that the relation of the local and central nervous system to peristalsis is not understood and, further, that other factors must come into play. One of the most important of these is tension; this quickly stimulates gastric peristalsis. By inflating a balloon in the stomach (Bayliss and Starling's experiment), contractions are excited immediately, and if the rubber bag is connected with a manometer, the number and force of the contractions can be observed. But it is not necessary to use even a balloon or bag; air can be introduced directly into the stomach and will at once excite powerful peristaltic movements. These cannot be produced chemically by products of foodstuffs, by irritants applied to the mucosa or by injections into the blood. Electricity also is negative. This makes tension more or less of a mechanical factor, but it is one of greatest moment and has much to do with the question of the primary cause of atony and the resultant dilatation of the stomach.

If continual peristalsis of a dog's stomach be produced, as by distending it with a bag or balloon, gradual atony of the muscle will follow, due to fatigue, and finally dilatation. At the end of two or three hours the greater curvature may extend even to the symphysis pubis; it becomes soft and flabby and will no longer contract. This condition may last for several weeks and can be prolonged by daily filling the stomach with indigestible substance like bran and water. Furthermore fatigue toxin is formed, which can be extracted from the gastric muscle, and when injected intravenously into healthy dogs, evidence of atony appears provided the animal's stomach is immediately filled with food.

Gastric muscle, then, falls in line with the laws of contraction and fatigue of muscle in general; and the experimental work on

animals by overworking the stomach and producing dilatation corresponds in etiology and pathology with the clinical observations in atony and fatigue of the gastric muscle in the human being. This can be seen in many cases of rickets; it often follows typhoid fever; and is frequently found in pulmonary tuberculosis. Even in a healthy individual, overwork of the stomach will result in fatigue and dilatation, and this will be permanent if the muscle cannot recover its power to contract.

As stated in the beginning, the differential diagnosis between motor insufficiency due to obstruction and that due to fatigue of the gastric muscle is difficult. The two conditions present similar history and symptoms; but physical examination will show some characteristic differences. In stenosis the muscle wall hypertrophies to compensate for the increased resistance of the pyloric outlet and will require greater tension than normal to distend it. On the other hand, in gastric myasthenia the muscle becomes less and less resistant to tension or it shows a greater degree of distention under the same pressure. This difference can readily be tested by artificial inflation of the stomach through a double tube. If accurate determinations are desired, a thin balloon should be introduced into the stomach and compressed air be used with regulated pressure and volume by means of a manometer; but for practical purposes the gyromele and percussion method will give fair data as to the elastic resistance of the muscle to air that is forced in. The energy with which the air is ejected from the stomach will also give some idea of the tonicity of the muscle. This can be felt with the hand or cheek; or the ejected air can be passed through a bottle containing soapy water and the amount of force will be indicated by the soap bubbles formed.

It requires practice to estimate with the hand the difference between muscles of normal and abnormal tonicity. If nebulized oil is forced into the stomach, the rapidity with which it passes out—a visible cloud form—will give some estimate of the elasticity of the muscle.

Further examination for the absence or presence of pyloric stenosis can be made by the use of the gyromele specially modified for sounding the duodenum. It can also be diagnosed by exclusion by the giving of a test meal as follows:

Wash out the patient's stomach and at the usual eating time give a test meal of rice, chopped meat and toast mixed with a little bran. Note carefully the time the food takes to pass out of the stomach. The next day exercise the stomach by inflating it with air through a double tube. Repeat several times, a few moments each exercise, until gastric peristalsis is excited. Then give another test meal like the first and at the same hour of the day. The length of time this second meal remains in the stomach is then compared with that of the first. If it is much shorter, say, for instance, that the food was in the stomach only six hours, then one could be certain that no stenosis was present and that the exercise of the stomach muscle with air had stimulated it to do quicker work.

Pneumatic gymnastics of the stomach will help to make our diagnosis more certain, and we are very much dependent upon such methods so long as our knowledge of etiology and pathology remains so incomplete.

The examination of the feces for muscle fibre and connective tissue is a simple but important means of differentiating between motor insufficiency of gastric and intestinal origin. This involves the giving of a test meal of meat which has been subjected to twenty-five or more pounds of steam for about five hours. This high temperature hydrolizes the connective tissue into gelatine. If the patient cannot digest the connective tissue as found in ordinarily cooked meat, even though the muscle fibre is pretty much digested, this indicates a disordered stomach: for two factors are concerned in the digestion of connective tissue, (1) $\text{HCl} + \text{pepsin}$; and (2) motor activity of the gastric muscles. If either of these is lacking the connective tissue will not digest and will show in the feces. If now the patient eats the hydrolized meat and this passes through undigested, then we have plain evidence of gastro-intestinal disturbance.

The trend of modern research has been especially characterized by a growing recognition of the importance of the physiologic methods of diagnosis, and the soundness of such methods has been conclusively demonstrated by Europe's foremost scientists.

THE DIAGNOSIS OF CHRONIC CHOLECYSTITIS

By HENRY WALD BETTMANN

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The diagnosis of chronic cholecystitis is usually made by physical examination. Important aid is rendered in many cases by the anamnesis, a study of the clinical symptoms, an investigation of the gastric functions and the results of medical treatment.

THE ANAMNESIS

Nearly all patients are between the ages of 30 and 60 years. The majority are women. Nearly all of these have borne children. Many date back their early symptoms to a period shortly following parturition. Many will record marked exacerbations after each confinement. In very few cases will there be a history of continuous suffering through a period of many years. Nearly always there have been marked remissions or intermissions during which the patients have enjoyed good health and sound digestion. This is very characteristic. The periodic attacks vary materially in the same individual. Pain may be a prominent symptom in some attacks; in others, dyspeptic disturbances may predominate; again, for months or years the patient may suffer from rather indefinite minor symptoms, such as tugging or dragging pains in the region of the gall-bladder or above the free border of the right ribs. Pain in the right shoulder is not as common as is generally believed. In patients under 35, especially in men, it is common to find a history of typhoid fever preceding the symptoms of cholecystitis. Sometimes the subsequent symptoms can be traced directly to the attack of typhoid, though this is by no means the rule. Cholecystitis is not generally chronic from the beginning, and attacks of severe pain (acute cholecystitis) lasting several days can usually be elicited from the history of the past, even in patients in whom pain has played a minor rôle in the total symptomatology. Repeated attacks of moderate or severe pain (acute exacerbations) are very characteristic.

Chronic cholecystitis under the age of 30 is by no means rare, and one must not be thrown off the scent by the youthfulness of the

patient. I have personally observed three cases of chronic cholecystitis in young unmarried women aged respectively 17, 22 and 26.

THE CLINICAL SYMPTOMS

I shall not endeavor to describe the great variety of clinical pictures which may be presented by cases of chronic cholecystitis, but shall limit myself to the symptoms which have a bearing on the diagnosis. In an analysis of 65 recent cases of chronic gall-bladder disease, I note that in 21 the chief complaints could be designated as dyspeptic in character; in 17 there were typical recurring attacks of acute cholecystitis (some of these I had seen in previous years); in 18 there were either typical attacks of gall-stone colic or severe pains of atypical character; in 7 there were rather indefinite symptoms of abdominal distress, and in 2, attacks of vomiting were the most prominent symptoms (in both of the latter adhesions being found at operation). For a description of the recurrent acute attacks, the reader is referred to my article on the Diagnosis of Acute Cholecystitis, in the preceding number of the ARCHIVES.

The dyspeptic symptoms may or may not be quite characteristic. Pressure under the sternum, especially pressure extending backward into the space between the shoulder blades, is especially frequent. This so-called "Magendruck," lasting often for hours, coming on without apparent cause, and *not relieved by alkalis or carminatives*, is exceedingly suggestive of gall-bladder disease. Especially characteristic are these pains if they occur at night, waking the patient out of sleep or preventing sleep. Should the patient vomit (through artificial means or naturally), or should his stomach be washed out, the continuance of the pressure is almost pathognomonic of conditions *outside of the stomach*. The same may be said of a sensation of bloat, associated with a desire to belch. When this symptom persists, though the stomach be empty, its cause is invariably extra-gastric. Other gastric symptoms associated frequently with chronic cholecystitis are a feeling of fulness after meals, growing worse during the height of digestion; persistent belching of tasteless gas (air); a feeling of soreness in the stomach during digestion (often due to a coincident hyperchlorhydria); in a word, all the minor symptoms which are grouped under that comprehensive term, dyspepsia or troublesome digestion. These symptoms may be entirely independent

of the particular quantity or quality of the food. When diet fails to influence gastric symptoms favorably, there is a strong presumption of an exciting cause outside of the stomach.

A STUDY OF THE GASTRIC FUNCTIONS

A study of the gastric functions is a valuable aid to diagnosis. It may be broadly stated that organic diseases of the stomach will almost always be recognizable by definite objective findings. An active ulcer bleeds either frankly or occultly, or produces marked hyperchlorhydria; a catarrh reveals excess of mucus; advanced gastritis is revealed by pronounced hypochlorhydria; atony and obstruction can be recognized by lavage at certain intervals after meals. Now often enough, chronic cholecystitis is associated with one or more of the above conditions. On the other hand, in a large proportion of cases of cholecystitis notwithstanding pronounced dyspeptic disturbances, the objective tests will reveal no abnormality of the secretory or motor functions of the stomach. When pathological conditions are found, the critical acumen of the clinician must decide whether the abnormalities are sufficient to account for the symptoms. Very frequently chronic cholecystitis is accompanied by hyperchlorhydria of greater or less degree. The symptoms of Magen-druck, heartburn and pain between the shoulder blades, are equally characteristic of both conditions. I have frequently observed in cases of mild hyperchlorhydria, associated with chronic cholecystitis, that the severity and obstinacy of the symptoms are out of proportion to the degree of hyperacidity. The effect of treatment is an important element in the diagnosis. It may be asserted rather dogmatically that symptoms due to intra-gastric conditions can almost invariably be relieved or cured by appropriate treatment. The corollary also holds that gastric symptoms not relieved or cured by appropriate treatment are extra-gastric in origin.¹ Not infrequently it happens that reflex gastric symptoms due to cholecystitis will disappear under treatment directed to the stomach and the true nature of the underlying condition may escape observation altogether or may be revealed later during a mild or severe flare-up of the physical signs.

¹In this connection malignant disease is not considered, as cancer will rarely simulate cholecystitis, or vice versa.

Summing up as far as we have gone we may say that a history of abdominal symptoms dating back for years, and possibly traceable originally to an attack of typhoid fever or more commonly to pregnancy; of an intermittent character; with certain symptoms predominating and not explicable by the findings usually present in gastric diseases is exceedingly characteristic of chronic cholecystitis with or without gall-stones.

A few words may be in order here regarding the relation between gall-stones and chronic cholecystitis. It is generally recognized that in the presence of gall-stones the symptoms are due in a minority of cases either to the tugging of the stone-filled bladder or to the mechanical obstruction of the moving stones; but that in the majority of cases the symptoms are determined by the degree of cholecystitis present. We are not usually able to make a differential diagnosis between gall-stones with and gall-stones without cholecystitis. Yet in a certain number of cases this is possible. When the symptoms of gall-stones have been unmistakable (colics, recurrent jaundice, passage of stones) and when during a long period of observation we have been unable to detect the physical signs of cholecystitis, we are usually correct in assuming the presence of numerous stones in an uninflamed or contracted gall-bladder. It cannot be too often repeated that an inflamed gall-bladder can be detected by physical signs (for which the reader is referred to my previous article). The continued absence of these physical signs nearly always means that whatever symptoms are present are due to mere tugging, or to the passage of minute stones. When the physical signs of cholecystitis recur from time to time, we are not able to decide positively whether stones are present or not. In the large majority of cases they will be found at operation. When an operation reveals an inflamed gall-bladder without stones, it has generally been believed that stones have been passed. In the large majority of these instances it is highly probable that at no time have stones been present.

PHYSICAL SIGNS

Regarding the physical signs, it is well to bear in mind certain facts. A chronically inflamed gall-bladder may be structurally so changed that it will at all times present certain easily recognizable

physical signs. On the other hand, cholecystitis may run a very mild or even latent course marked by more or less acute exacerbations. During the period of latency all physical signs may be absent. It may be laid down as a rule, however, that frequent exacerbations tend to leave in their wake persistent physical signs. The most striking of these is the so-called Riedel's lobe. The exact way in which the Riedel's lobe is formed is not definitely known. Repeated attacks of local hyperemia and swelling are the underlying cause. The tugging of the inflamed gall-bladder may play a rôle. The Riedel's lobe forms in certain cases in which there is no cholecystitis. Tight lacing or the wearing of a tight belt occasionally produces it. It may result from passive hyperemia of the liver in cases of heart disease or even of emphysema. I have repeatedly seen it in the autopsy room under the above conditions in the absence of gall-bladder disease. Riedel's lobe possesses decided diagnostic significance only when considered in connection with the history of the case. With a characteristic history before one and excluding the above conditions, one will rarely err in interpreting a tender Riedel's lobe to mean chronic cholecystitis or gall-stones.

The right kidney often confuses the examiner. The greatest care must be exercised in distinguishing it from the enlarged gall-bladder or a liver lobe. I have already dwelt on this point.

It is not always easy to differentiate chronic cholecystitis from chronic appendicitis, especially in the absence of characteristic physical signs. The symptoms of these two conditions often resemble each other strikingly. Local tenderness may be slight, and during certain periods wholly absent.

Twice during the past two years I have mistaken a chronic appendicitis for a chronic cholecystitis. One patient was a woman who had myocardial insufficiency, an enlargement of both the right and left lobes of the liver and marked dyspeptic symptoms with severe exacerbations. The tenderness of the enlarged right lobe misled me. The operation revealed a chronically ulcerated and thickened appendix; the gall-bladder was normal. It is necessary always to consider the possibility of marked tenderness in a passively congested liver. In the second case I was deceived by the right kidney. The symptoms and history were typical of a case of cholecystitis, but the operation revealed a normal gall-bladder and an appendix imbedded

in a mass of adhesions. In this case the patient always got relief from her symptoms (boring gastric pain, often associated with heart-burn) by inducing vomiting. As stated before, symptoms due to the gall-bladder are not usually relieved by emptying the stomach, and observance of this rule would have obviated error. This rule is helpful in differentiating chronic cholecystitis from gastric, gastro-duodenal and duodenal ulcer, especially the first of these. In ulcer limited to the stomach, the symptoms almost invariably subside more or less when the stomach is washed out. This is not so true of duodenal ulcer. Duodenal ulcer occasionally coexists with gall-stones, and these conditions have occasionally been mistaken for each other, but this error is relatively rare.

The clinical history and the physical signs differ materially in the two diseases and a continued study of the case will almost invariably lead to a correct interpretation.

A knowledge of the great frequency of chronic or recurrent cholecystitis may lead the practitioner far afield and cause him to diagnose cholecystitis when none exists. I recently saw a young woman who had frequent recurrent attacks of violent bilious vomiting lasting two or three weeks at a time, and whose gall-bladder region was exceedingly sensitive to pressure, and whose first attack occurred in the puerperium. This seemed to warrant the diagnosis of recurrent cholecystitis, but an operation revealed a normal gall-bladder and badly inflamed tubes and ovaries. Their removal was followed by an immediate cure. It is well for the internist to remember that inflammation of the pelvic organs, especially in women, frequently simulates very closely various diseases of the digestive organs.

In patients above 50 years of age it is not always easy to distinguish certain attacks of angina pectoris from those due to inflammation of the gall-bladder. The substernal pressure, the persistence of symptoms for hours, and their tendency to occur after meals are common to both diseases. Only a minute study of all the conditions present will save one from mistakes.

Finally it may be stated that in a certain small proportion of cases the diagnosis of chronic cholecystitis with gall-stones cannot be made with certainty, and an exploratory operation is justified when the symptoms seriously interfere with the patient's well-being.

DIFFERENTIAL DIAGNOSIS BETWEEN CHRONIC INTERSTITIAL AND CHRONIC PARENCHYMATOUS NEPHRITIS BY MEANS OF EXAMINATION OF URINE

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Although chronic inflammations of the kidney are among the most common affections to which the human body is heir, the classification of these affections always has presented great difficulties to the pathologists. There are hardly two pathologies in which the varieties of nephritis are given in the same manner. This is due to a great degree to the fact that degenerative conditions are usually associated with the inflammation and it is quite impossible to separate the different degenerations seen with the inflammations.

The terms interstitial and parenchymatous are those most frequently used, although they are by no means entirely correct. By an interstitial inflammation we mean, strictly speaking, one confined to the interstices of an organ, and by a parenchymatous inflammation, one confined to the parenchyma. Such conditions, however, are unknown, since both parenchyma and interstices are bound to be affected to a greater or lesser degree in all inflammations. It is for this reason that the term diffuse has been substituted by some pathologists who, however, try to differentiate by speaking of a diffuse interstitial and a diffuse parenchymatous, and in this manner again cause confusion.

One classification gives the following synonyms for chronic diffuse nephritis: chronic parenchymatous, chronic tubular nephritis, chronic catarrhal nephritis, chronic desquamative nephritis, chronic epithelial nephritis, chronic renal degeneration. The same author gives as a second variety of chronic nephritis, chronic interstitial nephritis with the following synonyms: chronic productive nephritis, chronic indurative nephritis, contracting or contracted kidney, granular kidney, fibroid kidney, cirrhotic or sclerotic kidney, gouty kidney, renal sclerosis.¹

¹Coplin, Manual of Pathology, 4th ed., 1905.

Since as before stated various phases of inflammation and degeneration are closely associated and even merged, a uniform classification of nephritis is difficult, but the term diffuse as a separate variety should certainly not be used. Experiments have conclusively proved that an independent pathological condition of either the epithelia or the connective tissue does not exist. The toxic substances producing the nephritis, before they reach the epithelia, must pass the walls of the blood vessels and have an irritating influence upon the latter. In the connective tissue changes are also found, though they may be confined to serous transudation, sufficient, however, to show that the epithelium cannot become diseased primarily and independently of the surrounding connective tissue. Every inflammation is primarily an interstitial one, and every parenchymatous inflammation must also at the same time be an interstitial one. The pathological changes may, however, be more pronounced in the epithelium than in the connective tissue. Since every inflammation in an organ composed of connective and epithelial tissue affects all its component parts to a greater or less degree, it will be diffuse to a certain extent from its onset. By this term is not meant that it affects the entire organ uniformly, but simply all the component parts of the organ at the site of inflammation.

The terms interstitial and parenchymatous, which were first used by Virchow, may be employed for want of better terms, the former when the pathological changes are more pronounced in the connective tissue, the latter when they are more pronounced in the epithelia lining the uriniferous tubules. The old terms of catarrhal and croupous, still used in inflammations of other organs, though not of great significance, are fully as good and may be employed in inflammations of the kidney instead of interstitial and parenchymatous.

In order to understand the features found in the urine in these forms of nephritis, it is necessary to understand the changes which take place in the kidney. In a chronic interstitial or catarrhal nephritis, so called, the surface of the kidney is marked by irregular shallow depressions, or by granulations, the capsule being adherent in most cases. The irregular depressions are due to retractions of newly formed connective tissue, which is formed at the expense of the uriniferous tubules. The result of such an inflammation is a shrinkage—cirrhosis—of the kidney. The whole kidney is consid-

erably reduced in size and the irregularities on the surface are well marked. Both the cortical and medullary substances are much narrower than in the normal condition; this is more marked in the cortex, of which in advanced stages only slight remnants are left, corresponding with the elevations of the surfaces. There is a partial destruction of glomeruli and blood vessels. The newly formed connective tissue is more or less regularly distributed throughout the kidney structure, the uriniferous tubules being in part transformed into connective tissue while still retaining the outlines of their original configuration.

The obliteration of a number of narrow tubules, including the ascending and descending branches, explains the clinical fact that persons affected with cirrhosis of the kidney void large quantities of urine having a low specific gravity, and which is, therefore, considerably deficient in solids. From the glomerulus only a watery liquid, containing a few salts, is voided, which becomes thicker by the addition of the saline constituents excreted by the narrow tubules. It is in the narrow tubules that much of the watery part of the urine is restored to the thickened blood running in the neighboring capillaries. If the function of the tubules be much interfered with, the interchange between the liquid contents of the tubule and the solid constituents of the blood does not take place and the urine will be voided in about the same condition in which it was pressed into the capsule from the glomerulus. Numbers of the convoluted tubules perish also through the increased formation of connective tissue, while from others the epithelia are simply desquamated and appear in the urine.

In chronic parenchymatous or croupous nephritis the kidney has a different appearance; it is more frequently enlarged than diminished in size. The surface is often nodulated, and between the nodules are seen deep cicatricial retractions. These retractions are not found uniformly over the surface and the capsule is adherent to them. The cortical substance is absent in the parts corresponding with the retractions of the surface, while in other places the cortex may be unaltered or even increased in bulk. The medullary substance may be unchanged or diminished. In contradistinction to the more or less uniform shrinkage of the kidney to which the name cirrhotic is given, the partial destruction of the tissue which occurs

in chronic parenchymatous nephritis is termed atrophy, since in the most diseased portions only traces of the original kidney structure are found.

In the depressed cicatricial portions of the cortical substance a large amount of connective tissue scantily supplied with blood vessels is found. There is no regularity in the arrangement of the connective tissue, and only remnants of the former tubules are seen, together with irregularly scattered sections of tubules from which the epithelial lining has entirely disappeared. In the most pronounced cases, in addition to the atrophied portions the large amount of newly formed connective tissue present in different places constitutes a regular hypertrophy.

In both chronic interstitial and chronic parenchymatous nephritis, fatty and waxy degeneration may be present. The former almost always, the latter only occasionally. The degenerations, however, are more pronounced in the parenchymatous than in the interstitial varieties. In the so-called large white kidney the highest degree of fatty degeneration occurs as a secondary result of the parenchymatous inflammation.

The clinical symptom seen in chronic kidney inflammations are more or less vague at the commencement of the affection and frequently not sufficiently marked for a distinct diagnosis. Chronic interstitial nephritis and even an incipient cirrhosis of the kidney at first present few, if any, characteristic symptoms; for that reason the disease is frequently not diagnosed until different complications set in. It is not at all unusual that a chronic interstitial nephritis remains undiagnosed throughout life and the diseased kidney is found at the autopsy table. Since edema is comparatively rare in many of these cases, the physician may at first suspect a nephritis or, as he frequently chooses to call it, Bright's disease, a term which should not be used among physicians, since it is unscientific and does not tell us from what variety of kidney inflammation the patient is suffering. He will examine the urine once or twice for albumin and possibly microscopically for casts, and not finding either discards the diagnosis of nephritis entirely. Yet such inflammations give perfectly characteristic features under the microscope and can be diagnosed in every case by a careful examination of the urine.

Chronic parenchymatous nephritis may also last for a long time

before any characteristic symptoms appear; not infrequently the first feature of the disease is edema of the face and lower extremities. At the same time a gradually increasing weakness and loss of flesh are noticed and the patient has little inclination for work. This variety of nephritis is more easily diagnosed, since albumin and casts are invariably present in a greater or less amount.

In the more pronounced cases of both varieties of nephritis occipital headache and pain in the lumbar region are present with general depression. In cirrhosis of the kidney the clinical symptoms later become marked. Loss of flesh and strength are noted, vomiting may be frequent, there may be dyspnea, and the pulse is tense, hard and often full.

The diagnosis of chronic nephritis should present no difficulties even at the commencement, provided the urine is carefully examined. We must, however, banish the old idea that a nephritis can not be diagnosed until an appreciable amount of albumin and especially casts are found in the urine. The majority of cases of chronic interstitial nephritis and even cirrhosis of the kidney never at any time show true casts in the urine, while the amount of albumin may be so minute as to escape detection.

From what has been said above it is plain that epithelia from the uriniferous tubules are bound to desquamate in every inflammatory condition of the kidney. These epithelia are perfectly characteristic and their presence in urine is sufficient evidence without casts for the diagnosis of a nephritis. Besides epithelia, pus-corpuscles, and usually red blood corpuscles are present in the urine in every case of renal inflammation.

These three features, kidney epithelia, pus-corpuscles, and red blood corpuscles, are sufficient for the diagnosis of a nephritis.

It is claimed that it is impossible to diagnose epithelia from the uriniferous tubules in the urine without the presence of tube-casts. This, however, is not at all difficult provided that a proper magnifying power is used. Powers of 100 to 200 diameters are quite insufficient for proper study of the urine under the microscope and no lower magnification than 400 diameters should be employed.

The uriniferous tubules are lined by epithelia more or less characteristic. Generally speaking the convoluted tubules are lined by cuboidal epithelia, the narrow tubules by flat, and the straight col-

lecting tubules by columnar epithelia, all in a single layer, although different portions of both the narrow and collecting tubules are also lined by cuboidal epithelia. Many epithelia seen in urine, especially the cuboidal and small flat varieties, may through the imbibition of the watery element have become oval or round and at times are more or less perfect spheres.

In studying sections from different kidneys similar epithelia to those found in the urine, though somewhat more irregular, will be found lining the tubules. These same epithelia are seen upon true tube-casts, and there is no reason whatever why we should not be able to diagnose them in the urine even without the presence of casts.

While it has been universally admitted that kidney epithelia are small formations only slightly larger than leucocytes or inflammatory- or pus-corpuscles and are among the smallest epithelia lining the different organs, it has been claimed to be impossible to differentiate them in urine. This differentiation, however, has been made comparatively easy since the advent of the ureteral catheter. It is quite plain that when we examine a specimen of urine taken with the ureteral catheter only epithelia from the ureter, the pelvis of the kidney and the uriniferous tubules can be present in such cases. In histological sections of these different organs the difference between the epithelia lining the uriniferous tubules, the pelvis of the kidney and the ureter is apparent. Ureteral epithelia are distinctly larger than kidney epithelia, although not much so, while pelvic epithelia are considerably larger, may be round or more or less irregular, pear-shaped or even caudate in appearance, their shapes being different from the different layers of the organ. In Fig. 1 the comparative sizes of red blood globules, pus-corpuscles and various epithelia seen in urine are illustrated.

Comparing the epithelia seen in urine with those seen in well-prepared thin sections, but not with those obtained after scraping of the epithelia from the organs, since the latter are bound to be more or less changed and resemble each other, the similarity between what is found in the urine and what is seen in the organs is striking enough. The difference in appearance of the epithelia in urine alluded to above is easily recognized and should not lead to mistakes. It is a poor argument to simply disclaim the origin of such epithelia from the uriniferous tubules without the presence at the same time

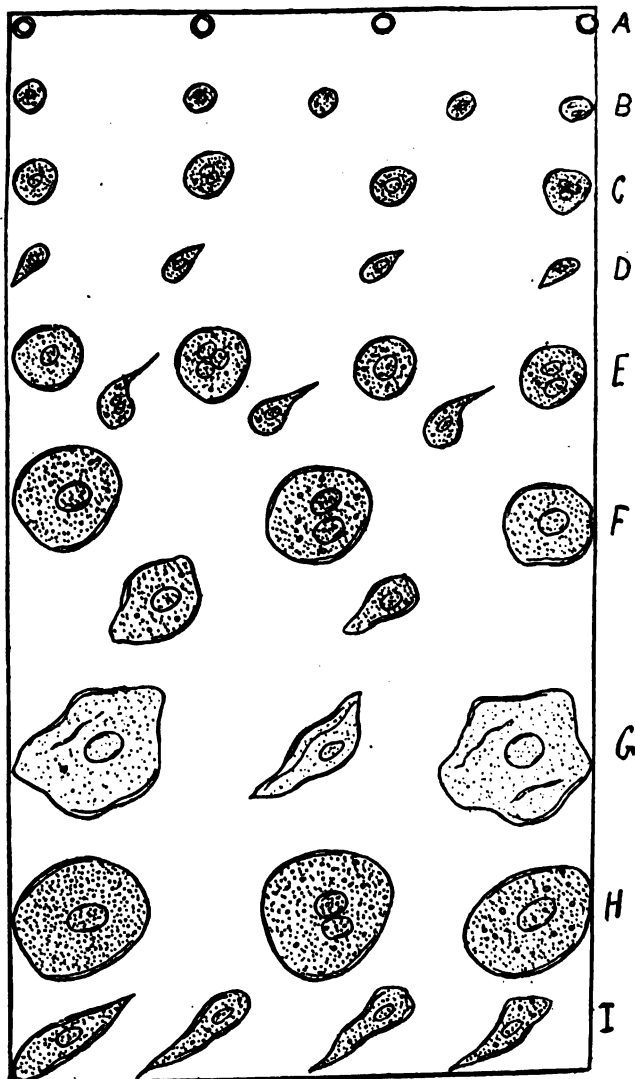


Fig. 1. *Diagram showing comparative sizes of Corpuscles and Epithelia.* Magn.=450

A, Red blood corpuscles. B, Pus-corpuscles. C, Epithelia from convoluted tubules of kidney. D, Epithelia from straight collecting tubules of kidney. E, Epithelia from ureter. F, Epithelia from pelvis of kidney. G, Epithelia from upper layers of bladder. H, Epithelia from middle layers of bladder. I, Epithelia from deepest layer of bladder.

of casts, and to claim that such a statement is mere conjecture. A simple study of the ureteral catheter specimens in cases in which it is clinically admitted that pathological conditions of the upper urinary tract are present, will at once show the correctness of this assertion. It is undoubtedly due to the inability to recognize these epithelia that many cases of chronic interstitial nephritis remain undiagnosed during life. The pathological changes in the kidney in this disease are sufficient to show that true tube-casts need not necessarily be present in the urine in such conditions; yes, frequently are not present in the sections made after an autopsy from a kidney so diseased.

Again, ureteral catheterization even in cases in which no pathological condition of the kidney is present is sufficient for the desquamation of epithelia from the ureter, due to traumatism, and these alone may be found in the urine, usually, however, with some from the pelvis of the kidney. In the study of epithelia from the different organs of the genito-urinary tract, as seen in urine, it is of course impossible to diagnose *every single* epithelium, since some are bound to be similar to others, but the *largest numbers* of epithelia can be readily located, as the *average* sizes are distinctly different in the different organs.

Before the presence or absence of epithelia from the uriniferous tubules in a given case can be determined, we must first look for the leucocytes or pus-corpuscles in that case; these are the smallest granular corpuscles present, and appear either nucleated or non-nucleated. Pus-corpuscles, by which term we mean inflammatory corpuscles cast off from their connection with the tissues, are not only emigrated leucocytes but also the results of proliferations of cellular elements. Again the nuclei are liable to disappear in the urine, especially when the corpuscle is coarsely granular. It is, of course, admitted that leucocytes or pus-corpuscles vary to a certain degree in every case, and may vary to a considerable degree in different cases. In a given case, however, no pus-corpuscle can be as much as one-third larger in diameter than another.

As soon as we have recognized pus-corpuscles, let us look for formations distinctly one-third larger in diameter than the pus-corpuscles in that case. These formations are epithelia from the convoluted tubules, and as a rule show one nucleus, which nucleus in

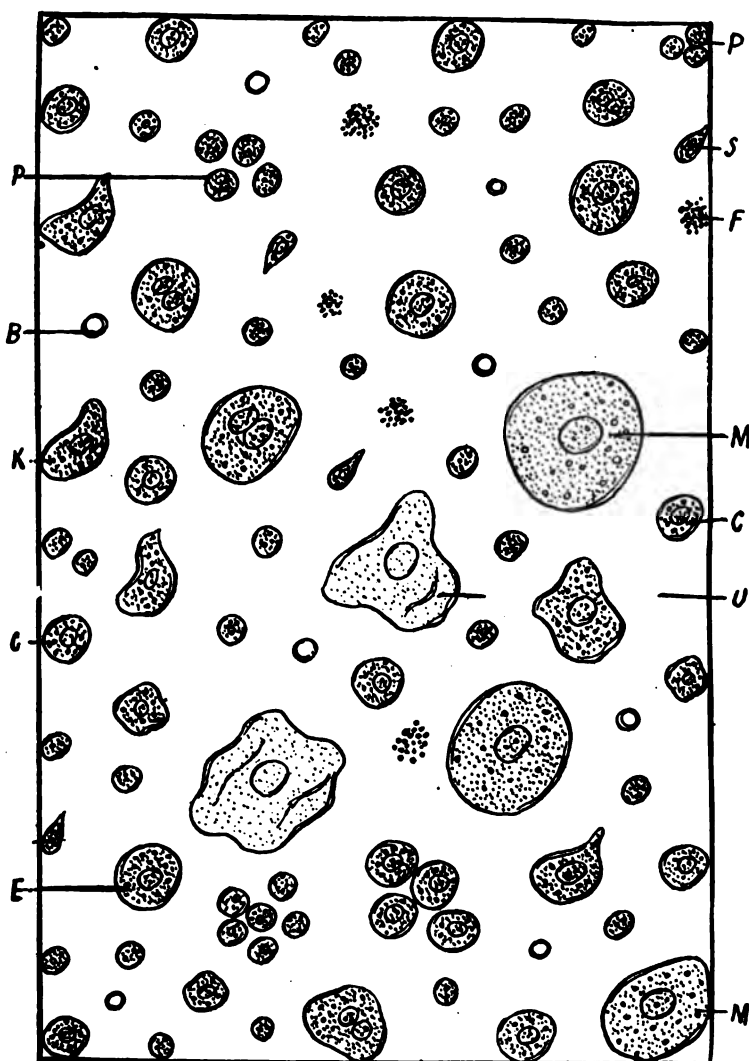


Fig. 2. *Microscopical features found in Chronic Interstitial Nephritis with accompanying Pyelitis and Cystitis.*
Magn. = 450

B, Red blood corpuscles. P, Pus-corpuscles. C, Epithelia from convoluted tubules of kidney. S, Epithelia from straight collecting tubules of kidney. E, Epithelia from the ureter. K, Epithelia from pelvis of kidney. U, Epithelia from upper layers of bladder. M, Epithelia from middle layers of bladder. F, Groups of free fat-globules.

intense pathological conditions may have undergone karyokinetic changes. The chief danger in making mistakes lies in the fact that some pus-corpuscles may have become hydropic and then closely resemble in size the kidney epithelia. A hydropic corpuscle, however, is always pale, more or less indistinct and either finely granular or the granulation has disappeared to a greater or less degree; such corpuscles should present no difficulty for diagnosis.

Kidney epithelia from the convoluted and narrow tubules then, as we see them in urine, are small, round, oval or somewhat irregular, nucleated formations, about one-third larger in diameter than the pus-corpuscle in that case.

That such a difference in size cannot be determined with a low magnifying power seems too plain to mention. Besides these epithelia, small columnar epithelia from the straight collecting tubules are also seen. The changes which these undergo in urine, due to their compactness and large amount of granular protoplasm, are slight, not sufficient to change their columnar shape, so that we find them as small elongated, columnar, or cylindrical, nucleated, granular formations, similar to those seen in the organ itself.

In all cases of chronic inflammation, secondary degenerative changes in the leucocytes or pus-corpuscles and the epithelia are bound to take place. These changes are most frequently of the character of a fatty degeneration. Small glistening, highly refractive granules and globules, which appear dark with one focus, spring up in the different parts of the granular protoplasm, replacing the original granules. In the most intense cases many of these cells are completely filled with the fat-granules and -globules, while others have burst, have allowed the fat-globules to become free, and the latter are found in small groups scattered through the different fields of the microscope.

Chronic interstitial nephritis, then, should offer no difficulties in diagnosis by microscopical urinalysis. The features present in such cases are illustrated in Fig. 2. It is also plain that the chemical features must be taken into consideration. In a chronic nephritis of this kind the amount of urine is as a rule large, polyuria being at times very pronounced. With this large quantity of urine we have a low specific gravity and usually a diminution of solids. The diminution of solids, however, is not always pronounced, especially since it is

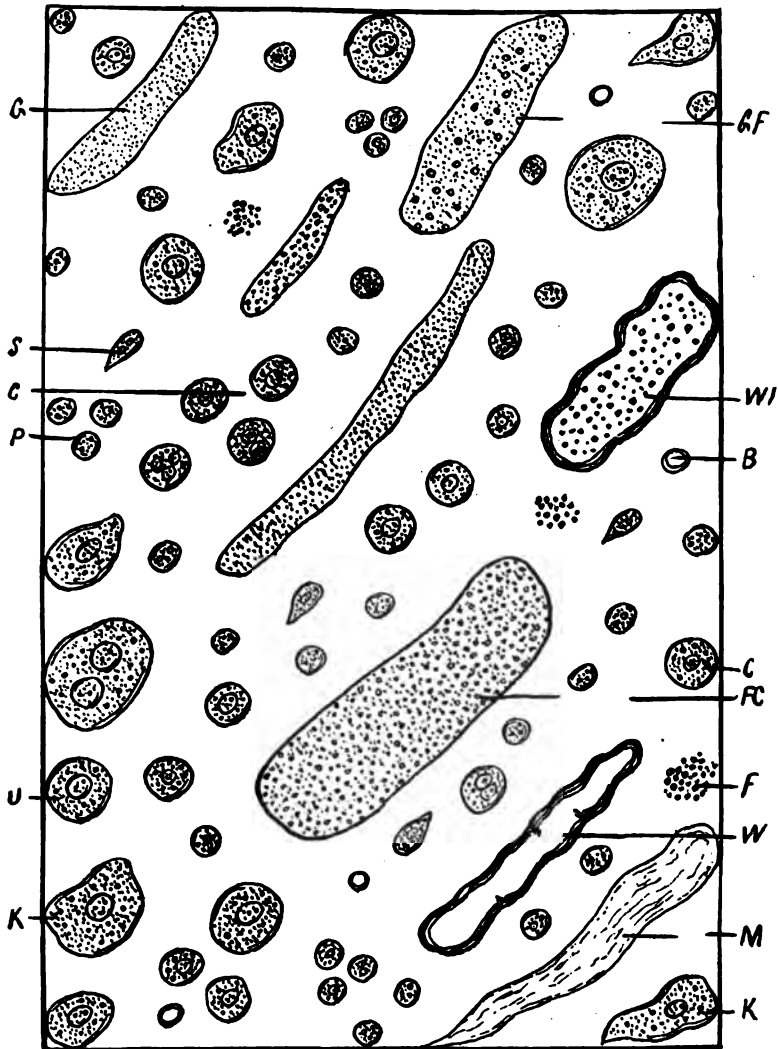


Fig. 8. *Microscopical features found in Chronic Parenchymatous Nephritis with accompanying Pyelitis. Magn.=450*

B, Red blood corpuscles. P, Pus-corpuscles. C, Epithelia from convoluted tubules of kidney. S, Epithelia from straight collecting tubules of kidney. U, Epithelia from ureter. K, Epithelia from pelvis of kidney. F, Groups of free fat-globules. G, Granular casts. FC, Fatty casts. GF, Granular fatty casts. W, Waxy casts. WF, Fatty waxy casts. M, Mucus cast or cylindroid.

admitted that even a chronic nephritis may be unilateral, although it is true that in the majority of cases the second kidney is at least congested. When the second kidney is in fairly good condition it will excrete a considerable amount of salts, so much so, that the diminution in the total solids may be comparatively trifling. It is for this reason that the amount of urea voided in such cases is no criterion whatsoever. This latter statement also holds good in the chronic inflammations seen during pregnancy, where physicians are only too apt to rely upon the total amount of urea voided before they form an opinion as to the condition of their patients.

While a fairly large amount of urea does not exclude a severe pathological condition in one kidney, the total amount of solids, including urea, may be small in cases in which the kidneys are not severely diseased. This holds good in many nervous conditions. In conditions such as are frequently present in the last months of pregnancy, where little if any exercise is taken, where the patient is more or less nervous, a large amount of liquid diet and but little solid diet is taken, a diminution in the excretion of solids is common, and is not necessarily of any significance.

Presence or absence of albumin also affords little help in diagnosis. In chronic interstitial nephritis albumin may be scanty at all times and may be so minute at different times as to escape detection entirely with our regular albumin tests. The microscope can undoubtedly alone show the condition of our patients in such cases *intra vitam*.

The urinary features of a cirrhosis of the kidney, that is, a small contracted kidney, the result of a chronic interstitial nephritis, are quite characteristic; they are as follows:

A. Chemical: 1. A large amount of urine voided, being at times increased from 1500 cc. to 2500 cc. or 3000 or even 4000 cc.

2. A continuously low specific gravity, as a rule below 1010 or not more than 1005 or 1003 at any time.

3. The presence of a small amount or not more than a trace of albumin, which may escape detection at times.

4. A diminution of all salts voided from the diseased kidney.

B. Microscopical: 5. Pus-corpuscles present in varying numbers, at times few, at times fairly numerous, but always containing

a larger or smaller number of fat-granules and -globules; that is, showing fatty degeneration.

6. Red blood globules in small numbers only.

7. Epithelia from the convoluted, narrow, and straight collecting tubules of the kidney; also found in varying numbers, the larger number containing fat-granules and -globules.

8. Free groups of fat-granules and -globules,

9. Small connective-tissue shreds; since in cirrhosis a certain amount of destruction of kidney tissue is bound to be present, since furthermore new connective tissue is formed, it is plain that small shreds can be found in the urine. These shreds we do not expect to see in simple chronic inflammations which have not as yet led to cirrhosis.

In a number of cases of chronic nephritis, the pelvis of the kidney and the ureter are also involved in the inflammatory process, so that epithelia from these organs are bound to be seen in the urine with the features above mentioned. Again, secondary cystitis is common, so that epithelia from the bladder, both flat and cuboidal from the upper and middle layers, are seen.

Tube-casts may or may not be present in cases of cirrhosis of the kidney. In many cases true tube-casts are never at any time seen, while in others and more especially in those in which mild or pronounced acute exacerbations occur, which is quite common, casts may be found, but usually in small numbers only. The varieties of casts seen are fatty, granular and hyaline, the latter when acute exacerbations have occurred.

In chronic parenchymatous nephritis the urinary features are somewhat different. Here tube-casts are invariably present and a diagnosis of chronic parenchymatous nephritis can never under any circumstances be made without the presence of different tube-casts. The varieties of casts found are granular, which are usually the most abundant in the milder forms, with a few fatty casts or granular-fatty casts. In the more intense cases, fatty degeneration of the kidney is pronounced and fatty casts are numerous. Waxy casts may or may not be present. Hyaline, epithelial and blood casts are seen only in acute exacerbations, since they are evidence of an acute process.

Pus-corpuscles, epithelia from the uriniferous tubules, and fat-

granules and -globules are present in varying numbers, while red blood corpuscles are also seen. See Fig. 3.

The urinary features in atrophy of the kidney are the following:

A. Chemical: 1. Small amount of urine voided, always below normal, may be not more than 800 or 600 cc. or even less.

2. Continuously low specific gravity, as a rule never above 1010, occasionally not more than 1006 or 1003 at any time.

3. The presence of a large amount of albumin, in contradistinction to the small amount found in cirrhosis. Here albumin is invariably present in an appreciable amount, and may be quite abundant.

4. Diminution of all solids.

B. Microscopical: 5. Pus-corpuscles in moderate numbers, containing fat-granules and -globules.

6. Red blood globules, few or moderate.

7. Epithelia from the convoluted, narrow, and straight collecting tubules of the kidney, in moderate numbers containing fat-granules and -globules.

8. Free groups of fat-granules and -globules, sometimes quite abundant.

9. Granular, fatty, and in some cases even waxy casts in varying numbers, the former being usually quite abundant.

10. Connective-tissue shreds of small or moderate size are in pronounced cases always present in at least fair numbers. This is due to the considerable destruction of kidney tissue, and the large amount of newly formed connective tissue.

When these features are all taken into consideration the diagnosis of a nephritis under the microscope is found to be easy, and no case of nephritis of any kind whatever should escape detection and diagnosis. When we once have satisfied ourselves that a nephritis even of severe character need not of necessity show true casts in the urine, the diagnosis, even when the clinical features are obscure, can always be made, and it will not be left for the autopsy table to clear up these cases after death.

DIFFERENTIAL DIAGNOSIS OF VARIOUS FORMS OF DEAFNESS

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It is not easy to make a succinct statement concerning the differential diagnosis for the various forms of deafness. This difficulty arises from the fact that there is some confusion and uncertainty concerning the interpretation of the functional tests. It is generally understood that shortening of the period of bone conduction, and lowering the high tone limit are due to labyrinthine lesion. This, however, is not necessarily true, as these symptoms may also occur in middle ear deafness. This misconception accounts for the misinterpretation of these symptoms—a misinterpretation which naturally makes the functional tests appear at first sight to be contradictory and irreconcilable. When, however, we study these symptoms from the correct point of view, the facts appear in quite a different light and conform consistently to a general plan which we will unfold.

Deafness depends upon some defect in one or more of the parts of the hearing organ, namely, (*a*) in the outer ear, canal or sound collecting apparatus, (*b*) in the middle ear, drum or sound focusing apparatus, (*c*) in the inner, labyrinthine, cochlear or sound receptive apparatus, (*d*) in the auditory nerve, cochlear nerve and ganglia or sound conductive apparatus and (*e*) in the central or sound conceptive apparatus.

Let us now consider whether these forms of deafness offer particulars sufficiently characteristic to identify them either as collective, focusing, receptive, conductive or conceptive. We will also take up the points which enable us to make a differential diagnosis of these particular forms. The diagnosis of the forms of deafness may be made from the subjective hearing symptoms corrected and modified by objective observations.

When there is a mechanical obstruction to the passage of sound through the external auditory meatus, outer ear, external canal or sound collecting deafness results. The impediment is readily demonstrated on inspection. The history of the case is often one of sudden painless deafness without symptoms of a catarrhal nature. Often the deafness at first is intermittent for short periods. The functional tests are entirely superfluous. They are usually the same as in cases of focusing deafness except that the upper and lower tone limits are less altered. Bone conduction is relatively and absolutely increased in duration. The auditory reaction is normal and deafness is not very extreme. The central reaction also is normal. When the cause is as obvious as it is in this form of deafness, there is no need of careful differentiation. The differential diagnosis of collective deafness from all other forms of deafness is confirmed by the improvement in the hearing which follows when the obstruction is removed.

Middle ear or focusing deafness is caused by defective transmission through that middle ear apparatus which concentrates the sound and accommodates the hearing organ for sound reception. When inspected, most cases will disclose a defect or loss of tissue in the drum membrane and ossicular chain, hypermobility or immobility, malposition, loss of elasticity, thickening or thinning. The history is characteristic; it shows one or more of the following symptoms: Otorrhea, catarrh of the naso-pharynx, earache, fluctuations of the deafness in conformity with the weather changes, and exacerbations associated with constipation, etc. The onset may be either slow or sudden. Functional tests in the typical cases show the low limit of tone perception raised above 24 single vibrations per second, with very little change in the high limit. The atypical cases show in addition to the raised low limit, also a definite but not extensive loss of high tone perception, perhaps to below 50,000 single vibrations per second. In the typical cases, bone conduction is lengthened, both actually and relatively. In the atypical cases, however, there is an actual decrease in time of bone conduction. While there are all degrees of loss of hearing in this form there is never absolute deafness. Auditory reaction is normal. The central reaction in this form of deafness is normal. The differential diagnosis from the other forms of deafness is made on inspection of the drum. If the

drum is found normal in appearance and movements, functional hearing tests must then be resorted to. If the low limit of tone perception is found to be distinctly raised, a positive diagnosis is made.

When the transformation of sound vibration of the labyrinthine fluid into the nerve motion of the auditory nerve terminals is interfered with, labyrinthine, cochlear or receptive deafness results. In this form of deafness inspection is negative. The history may indicate syphilis, drug or bacterial intoxication, physical shock or arteriosclerosis. The onset is often sudden. The range of high tone perception shows a marked decrease, 40,000 single vibrations per second, or less. Bone conduction is absolutely and relatively shortened. The deafness is often marked, sometimes absolute. Auditory reaction is slow. The central reaction remains good. Differential diagnosis between the other forms of deafness depends upon the lowering of the upper limit of tone perception markedly out of proportion to the other defects in hearing.

Nerve or conductive deafness is due to defect in the function of the auditory nerve and its peripheral ganglia. Inspection is negative. The history may be syphilis, drug or bacterial intoxication, arteriosclerosis and neurasthenia. Rapid decrease of hearing power is often marked after exercise of the function. The onset may be either slow or sudden. The range of tone perception is nearly normal. Bone conduction is absolutely and relatively diminished. The deafness may be of any degree, including even absolute deafness. Auditory reaction is markedly slow. Central reaction remains good. The differential diagnosis is founded upon very slight alteration in the tone limits accompanied by decreased bone conduction hearing.

Central or perceptive deafness is due to impairment of the function of the central ganglia and cortex of the auditory sphere. Inspection is negative. The history often shows association with other central disturbances, beside trauma, syphilis, arteriosclerosis and intoxications. The onset is usually sudden. Signs of easy fatigue of the function are present. The functional tests give a nearly normal tone perception. Bone conduction is absolutely and relatively reduced. Deafness is never absolute. Auditory reaction is very slow, but there is no sensory deafness. The central reaction shows defect in the auditory sphere. The defect lies in one or more of the elements of the auditory sphere shown by various forms of

aphasia. Differential diagnosis is made on the central difficulties of the auditory sphere.

Deafness originating in one form often by direct extension or inhibitive reflex, involves another form later. The single exception to this is the collective form, which is not influenced by forms more centrally located. On the other hand collective deafness may affect all the other forms. Clinically there is usually a combination of collective and focusing deafness or of focusing and conductive deafness or of conductive and perceptive deafness or of perceptive, conductive and conceptive deafness. Combination of forms is the rule in extreme deafness. Absolute deafness is always located centrally to the focusing form. When there is a combination of various forms of deafness a differential diagnosis may be very difficult. A differential diagnosis and the determination of the most important factors in a case of combination of forms is most important and indispensable for accurate prognosis and for intelligent and successful treatment.

	Inspection	History	Tone Limits	[Bone Conduction	Auditory Reaction, Degree of Deafness.	Central [Reaction
External ear or collective deafness.	Reveals the cause and establishes the diagnosis.	Sudden deafness, often intermittent.	Functional tests are unnecessary. They are the same as in focusing deafness.	Usually increased; actually and relatively.	Reaction normal. Degree of deafness; never absolute.	Normal.
Middle ear or focusing deafness.	Reveals the cause and makes the diagnosis in most cases.	Often catarrhal or of ear suppuration. Onset slow or sudden.	Rise of low tone limit. Sometimes fall of high tone limit.	Usually increased relatively. Sometimes decreased actually.	Reaction normal. All degrees of deafness, except absolute.	Normal.
Labyrinthine, cochlear or receptive deafness.	Negative.	Associated with syphilis, drug or bacterial intoxications, arteriosclerosis, trauma. Onset often sudden.	Marked drop of limit of high tone perception.	Absolutely and relatively shortened.	Reaction slow. Marked deafness. Sometimes absolute.	Normal.
Nerve or conductive deafness.	Negative.	Associated with syphilis, drug or bacterial intoxications, arteriosclerosis, neurasthenia. Onset slow or sudden.	Nearly normal.	Absolutely and relatively shortened.	Reaction markedly slow. Marked deafness.	Normal.
Central or conceptive deafness.	Negative.	Often associated with other intracranial disturbances. Onset usually sudden.	Nearly normal.	Absolutely and relatively shortened.	Reaction normal or slow. Sensory deafness.	Some defect in the central auditory sphere.

ON THE DIAGNOSIS OF THE COMMONER DRUG ERUPTIONS

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Dermal phenomena as the result of the action of drugs either directly upon the skin from the outside or indirectly after the administration of medicines internally occur with sufficient frequency to render their study a matter of some interest and importance. And since they usually occur in individuals under medical treatment and observation, and often very closely resemble eruptions due to other causes, they are very liable to be the occasion of diagnostic error. Some drug eruptions closely resemble the exanthemata, scarlatina, measles and variola; others again look very like certain forms of syphilis, tuberculosis, and other chronic infections of the skin; whilst others again show a striking resemblance to other dermatoses of entirely different origin. Their differential diagnosis is therefore often a matter of the greatest importance; and a brief consideration of the distinctive features of their commoner manifestations may be of interest.

The first point that I would note is the fact that, in the present state of our knowledge of the subject it is not possible to make any satisfactory classification of these eruptions. An essential feature of most of them is polymorphism; the same causative agent may cause lesions in different cases, or even in the same case, that vary very greatly in appearance, distribution, and course. There are exceptions to this rule, of course; some medicinal agents, externally or internally applied, occasion distinctive dermal manifestations in most cases which render their recognition easy. The black point tipped lesions of a tar acne, the scarlatina-like eruption from belladonna, the morbilliform exanthem from copaiba, are fairly constant phenomena; yet they may vary greatly even in these cases from these established types. To give only a single example, the copaiba eruption, usually erythematous and papular, may be urticarial, vesicular, bullous, or

even petechial. An etiological classification of these dermatoses is therefore impossible. A pathologico-anatomical classification is of course equally out of the question.

The only practical division of the subject is one based upon the mode in which the causative agent gains access to the tissues in order to exert its noxious influence upon them. Leaving out of account, of course, agents such as the mineral acids and the alkalies, etc., whose effect when applied to the integument may be regarded as mechanical rather than medicinal, we can group in one class all those agents which, when applied to the skin, regularly or occasionally cause a definite reaction in the skin beyond the area to which they are applied, or even over the entire integument. Since these reactions are usually inflammatory in nature, the term *Dermatitis venenata* may be employed to designate them. The term is usually, I am aware, restricted in its application to the reaction occasioned in the skin by the local influence of the poison ivy and the poison oak; but it may well be extended to include the very similar phenomena that occur after the local application of other medicinal applications.

In another class we may include all the other eruptions which occur after the employment of medicinal agents that have been taken into the body and incorporated with the tissues; and this no matter whether the agent has been taken in by the mouth, or by the rectum, or injected into the deeper tissues, or inhaled into the lungs, etc. Whether the drug exerts its influence during its passage through the excretory organs of the skin, or by its effect on the central nervous system or the dermal nervous supply, or by some other and less obvious method, is immaterial; the essential point being that it is manifested only after the irritant has reached the circulation and has been distributed through the body tissues. The action of the agent is obviously entirely different from that of the drugs in the first class; and we may designate these eruptions, which are also largely inflammatory in their nature, as *Dermatitis medicamentosa*.

A review of the extensive literature of drug eruptions, and a reference to the numerous cases that I found among my records, makes it very evident that anything like a complete account of the subject is entirely impossible within the limits of a paper such as



Photo by the author
**Fig. 2. Purpuric and Vesicular Eruption
from Quinine**

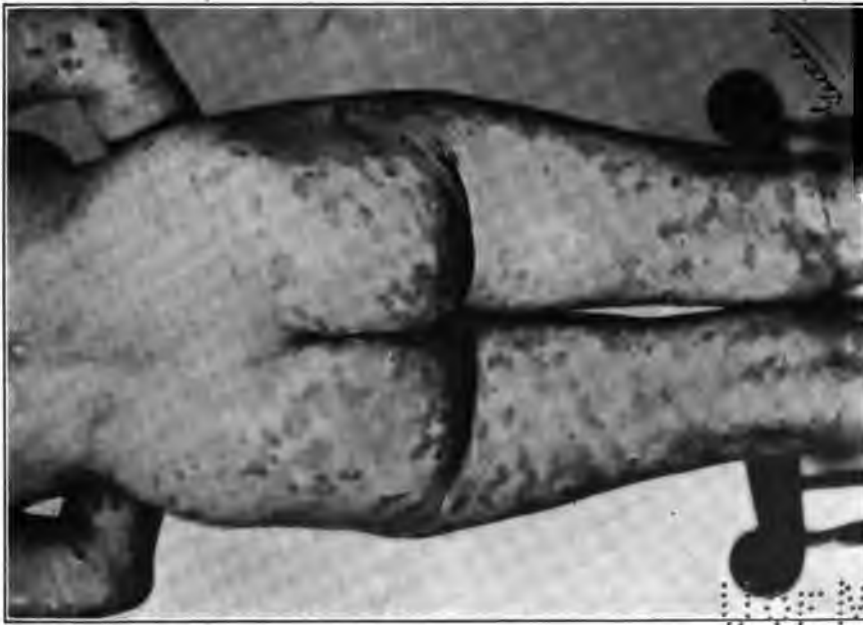


Photo by the author
**Fig. 1. Urticarial Eruption following the
Administration of Antipyrin**

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THE ARCHIVES OF DIAGNOSIS



Photo by the author
Fig. 4. General Eruption from Belladonna
(Belladonna plaster application)



Photo by the author
Fig. 3. Pustular and Crustaceous Eruption
from Bromides

1700

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Photo by the author

Fig. 5. Tuberous Bromide Eruption (followed three two-grain doses of Sodium Bromide)



Photo by the author

Fig. 6. Iodoform Dermatitis

1170



Photo by the author
Fig. 8. Pustular Eruption from the local Application
of Mercurial Ointment



Photo by the author
Fig. 7. Papulo-Vesicular Quinine Eruption

1950

this. A mere list of the various remedial agents which, applied externally or administered internally, have occasioned the appearance of more or less extensive dermal phenomena, is a formidable one. To mention only some of them, dermatitis venenata has been noted from the application of staphisagria, turpentine, tar, croton oil, oil of cade, chrysarobin, pyrogallol, salicylic acid, carbolic acid, iodoform, hyoscyamus, mercury, digitalis, chloral, cantharides, belladonna, balsam of Peru, arsenic, arnica, antimony, sulphur, and lead, as well as from contact of the skin with the active principle of the poison ivy and the poison oak. *Dermatitis medicamentosa* rejoices in an equally long list. Eruptions of various kinds have been noted after the administration of digitalis, turpentine, stramonium, santalin, ergot, hyoscyamus, phosphorus, lead, cod-liver oil, chloral, cannabis indica, calcium sulphide, acetanilid, antipyrin, antimony, tannic acid, aconite, salicylic acid, nitric acid, carbolic acid, nitric acid, benzoic acid, and morphia, as well as the better known dermal reactions that are liable to follow the internal administration of quinine, copaiba, arsenic, bromine, belladonna, silver nitrate, mercury and iodine. If it were possible to systematize these phenomena and to reduce them to definite and readily recognizable types, it might be possible to attempt some complete account of them. But since a single drug may cause various forms of skin eruption, and very different agents may cause dermal lesions that are similar, a complete account of these manifestations would lead us far beyond the limits of the present article. I shall note here only those general characteristics which would lead us to suspect drug intoxication as the cause of a local or general efflorescence.

1. *Polymorphism.* This is a very essential feature of drug exanthems; so much so that whilst on the one hand it in many cases prevents the easy differentiation of the eruptions, its very presence is an essential factor in forming the diagnosis. Skin lesions of the most varied kinds and extent may occur from the toxic influence of drugs. It is true that certain types of eruptions are commonest. A general urticaria, or a papulo-vesicular eczema are the commonest of these dermal reactions. But vesicular or bullous eruptions, pustules, furuncles, hemorrhages, ulcerations, and even gangrene may occur; and mixed eruptions, showing two or more of these types are also seen. It is true also that with certain drugs a specific and

characteristic type of skin lesion occurs with sufficient constancy to render it easy of recognition. Thus iodine regularly occasions an acne of the face and trunk, bromine a tuberculous exanthem on the legs, copaiba an acute general vesicular eruption, etc. Even with these drugs, however, eruptions of other types may occur; and in the general run of drug eruptions polymorphism is the rule. In fact the occurrence of any eruption of anomalous type, or any exanthem in which the lesions are mixed and indefinite, should lead us to at all events consider the possibility of the presence of a drug eruption.

2. *Rapidity of development.* In some forms of drug eruption long-continued action of the noxious agent is necessary to occasion the appearance of the lesions, which are apparently due to accumulative action of the drug; in others, however, the lesions appear so quickly after the administration of the medicament that the relationship between the two is evident. This is especially true of the urticarial and acute vesicular types of drug exanthemata. The general urticarias that may follow in an hour or two the administration of a dose of quinine or antipyrin, the acne pustules that appear after a single day's iodine administration, etc., are examples of this rapid action. In many cases, however, this diagnostic feature is not available; but where it does occur it is of the greatest value in helping us to determine the cause of the eruption.

3. *Etiology.* This is naturally a most important factor in making the diagnosis of a drug eruption; and equally naturally it is one that may readily lead us astray. A patient undergoing medication or subjected to the influence of some chemical agent develops an eruption; the sequence of cause and effect is so evident that it seems absolutely demonstrative. And herein lies the pitfall that not infrequently leads to error to be avoided by a careful consideration of all the other factors in the case. Certain drugs are especially prone to cause dermal reactions; such are antipyrin, silver nitrate, arsenic, belladonna, bromine, iodine, chloral, quinine, copaiba, internally, and carbolic acid, iodoform, chrysarobin, pyrogallol, arnica, balsam of Peru, belladonna, cantharides, mercury, etc., on external application. In some of these the resultant skin lesion is perfectly characteristic; as for instance the dark diffuse staining of argyria, the keratosis of arsenic, the acne from iodine, the tuberculous exanthem of bromine in

the first, and the folliculitis of mercury, the erythema of chrysarobin and the dermatitis from carbolic acid in the second class. Other drugs, on the contrary, occasion eruptions that are not characteristic; as the urticarial exanthem from antipyrin or chloral, or the lesions occasioned by arnica or balsam of Peru. A characteristic eruption following medication is decisive; a non-characteristic one is only presumptive evidence of the etiology. The test of experiment can often be employed; but it does not always help us. I have seen a characteristic and undoubted bromoderma tuberosum following the medicinal employment of the drug, and yet the subsequent administration of the remedy was not followed by recrudescence of the skin lesions.

4. *Idiosyncrasy.* This is a marked factor in all the drug eruptions; and with the more commonly used remedies the patient not infrequently learns the fact of his susceptibility himself, and informs the physician of it. I have learned by experience to lay considerable stress on patients' statements in this respect; they are often based on repeated experiences. Some patients cannot take quinine or chloral without an urticaria; and I recently saw a case in which mercury in any form at all, and in any method of administration or dosage, occasioned a violent hemorrhagic exanthem. And this leads us directly to the second point under this heading. Given the idiosyncrasy to a drug, it may be possible for almost incredibly minute doses to occasion the dermal reaction. I have seen two 2-grain doses of potassium bromide cause a typical bromoderma tuberosum in an infant, and 3 grains of iodide of potassium occasion a marked acne in an adult. The amount of the medication therefore plays but a very small part in determining the appearance of the eruption.

5. *Location, extent, course, and duration.* These phenomena may be of some help in the diagnosis in certain cases. Thus eruptions due to external medication are sometimes confined to the area that has been subjected to the drug influence, and are almost always most marked there. Some due to internal drug administration affect especially certain locations; thus the argyria form is most marked on the face and hands, the parts exposed to the light; the acne from iodine appears chiefly on the face and back, where the sebaceous glands are best developed; the copaiba erythema is most marked upon the abdomen and back, etc. The dermatoses due to the

external application of drugs are usually localized; those from internal administration are usually generalized. The erythematous, urticarial and vesicular lesions of the eruption from quinine, chloral, copaiba, etc., are usually acute and fugacious; whilst the tuberculous lesions from bromine, the keratosis from arsenic, and argyria, etc., are notable recalcitrant and perhaps permanent dermal lesions.

6. *Morphology.* In view of what I have said of the polymorphism as a characteristic feature of drug eruptions, it is evident that their external characteristics alone are of minor value in the diagnosis of these eruptions. Nevertheless, with certain drugs there are certain prevailing types of eruption which help us; and I shall close this short consideration of an extensive subject with a list of the more commonly used drugs that occasion dermatoses, and their usual manifestation on the integument.

a. *Boric acid.* Externally, general erythema.

b. *Carbolic acid.* Externally, dermatitis of varying intensity, even going on to gangrene.

c. *Chrysarobin.* Externally, hyperemia, erythema, papular, pustular, furunculoid, or erysipelatous dermatitis.

d. *Pyrogallol.* Externally, dermatitis of varying severity, even to ulceration and sloughing.

e. *Salicylic acid and the salicylates.* Externally, vesicular eczematous eruption. Internally, general erythema, urticarial, papular and even petechial eruption.

f. *Bromine and the bromides.* Internally, acne most commonly. Less frequently, a tubercular eruption on the extremities. Rarely an urticarial, erythematous, or furuncular general eruption.

g. *Iodine and the iodides.* Externally, dermatitis of varying grade. Internally, acne commonest; tubercular eruption, usually on the extremities, rarer. Occasionally an erythematous, papular, urticarial, vesiculo-bullous or even gangrenous exanthem.

h. *Sulphur.* Externally, a general papular or scarlatiniform eruption; eczematous inflammation.

i. *Tar and its compounds.* Externally, an erythematous, papular or vesiculo-pustular eruption; acne.

k. *Morphia and its compounds.* Internally, general pruritus, general erythema, an urticarial or papulo-vesicular eruption.

l. *Iodoform.* Externally, acute dermatitis of varying degrees of severity.

m. *Mercury and its compounds.* Externally, dermatitis, and especially a suppurative folliculitis of the hairy parts; a general eruption of scarlatiniform type, or even petechial or gangrenous lesions. Internally, may cause the same lesions.

n. Copaiba. Internally, a papulo-vesicular general eruption, often resembling German measles.

o. Cinchona and its alkaloids. Internally, a general urticarial, erythematous, papulo-vesicular, bullous, or petechial efflorescence. Scarletiniiform rash.

p. Chloral. Internally, a general erythematous, papulo-vesicular or petechial rash.

q. Belladonna and its derivatives. Externally and internally, fugacious scarlatiniform rash; a papulo-vesicular eruption more rarely.

r. Balsam of Peru. Externally, an eczematous eruption or dermatitis.

s. Arsenic. Externally, intense eczematous inflammation, ending even to gangrene. Internally, an erythematous, papular, urticarial, pustular, or ulcerative eruption; brown pigmentation in spots; localized keratosis; carcinoma.

t. Nitrate of silver. Internally, diffuse grayish to steel black pigmentation, especially on exposed parts.

u. Antipyrin and its congeners. A general fugacious, urticarial eruption.

INDICANURIA: ITS DIAGNOSTIC VALUE

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Indoxyl potassium sulphate, or Indican, has been known to exist in the urine since 1840, yet it is only in recent years that its true value as a diagnostic and prognostic factor has been recognized and correctly interpreted. At one time indican was considered a normal constituent of the urine. This, however, was an error in judgment, for a product of putrefaction can never be regarded from a physiological standpoint as giving evidence of the normal state of the animal economy, therefore its presence in the urine is always positive evidence of an abnormal or pathological condition. Hence, it is absolutely unscientific to speak of indican as a normal constituent of the urine. It is a substance that indicates positively that there is a putrefactive fermentation of the proteid constituents either in the

intrinsic structures of the body or in their passage through the alimentary canal. As a putrefactive fermentation of the proteid constituents is so extremely infrequent in the intrinsic structures,¹ and so very common in the intestinal canal, it may be regarded as being confined to the contents of the alimentary tract. Therefore, indican in the urine denotes, practically speaking, always, an abnormal transmutation of the proteid constituents of the food elements, brought about, in large measure, by the action of the *Bacillus coli communis* in the intestinal tract when the bacilli are not inhibited by the action of the digestive secretions and their constituent ferments. Consequently, indican is an indication of two important facts—directly, putrefactive fermentation, and secondarily, defective digestive secretions and loss of inhibitory power over the colon bacilli. The latter, or the defect in secretions, is the more important as regards therapeutic management, but as the purpose of this paper is its diagnostic and prognostic importance only, this will not be further considered.

If we study the results of the indican test, closely, as it is used by the author, in connection with the clinical phenomena presented, we find that it enables us to diagnose a number of important conditions connected with digestion, the action of the liver, and metabolism. This is especially true if the test is used in connection with the indican color scale first published by the author in the *Post-Graduate* (October, 1907). If this test is applied and the resulting reaction or deposited chloroform is white and not colored, we are assured that the alimentary tract and the system at large is free from putrefactive fermentation. We also know that the digestive secretions are practically normal and are perfectly inhibiting the destructive action of all forms of putrefactive bacteria.

When the indican test results in a deep clear blue it indicates a moderately simple form of putrefactive fermentation, one in which there are comparatively few by- or toxic products formed; one in which the digestive secretions have lost in part only their inhibitory power over the bacteria of putrefaction.

On the other hand, when the result is a dirty, muddy blue it indicates a putrefactive change in which innumerable by- and toxic products are produced, to wit, toxins which may be toxalbins or sub-

¹Beckman, W., St. Petersburg Med. Woch., 1894, Nos. 28, 29, pp. 255-268; Abst. Merck's Bulletin, Nov. 15, 1894, p. 1377.

stances due to imperfect oxidation reduction of the proteid elements. Under these circumstances the digestive secretions are exceedingly poor and have to a large degree lost their inhibitory power over the bacteria of putrefaction. When this is the case, there is usually a highly toxic condition of the system and a more or less profound disturbance in metabolism, one which if allowed to go on will in the near future result in profound changes in some organ of the body.

When the result of the indican test is of a decidedly bluish-black or almost black color, we have a very intense type of putrefactive fermentation, associated with the production of a large number of highly toxic substances which, when introduced into the circulation, give rise to one of the most severe forms of toxemia that the practitioner is called upon to treat.

If the indican test results in a reddish shading of the blue or a reddish-green coloration to the deposited chloroform, it indicates an obstruction to a free flow of bile through the common duct. In my experience, this type of reaction is always indicative of biliary obstruction in the entero-portal side of the liver, and in which there is comparatively little change, within the liver or in the liver-cells. These cases bear surgical interference well.

On the other hand, if the indican test results in a greenish tinging of the blue, or there is a mild or distinctly green coloring of the deposited chloroform, it always indicates an obstruction to the internal or intrahepatic end of the bile ducts—a condition in which the hepatic cells are unduly granular, swollen, sluggish, and inactive, so much so that they do in many instances absolutely occlude the internal ends of the bile ducts, producing the condition first described by the author under the term intralobular compression or occlusion jaundice.¹ Under these circumstances, owing to the occluded internal ends of the bile ducts, the bile salts and pigments produced by oxidation of the proteid molecule in the hepatic cells, and which cannot escape by the biliary passages, pass back into the lymph spaces on the other side of the hepatic cells, ultimately gaining access to the blood and to the system at large—a part escaping into the urine, while some of the pigments are deposited in the tissues, showing in the mild cases as a yellow tinge in the white of the eye only; when more profound,

¹American Medico Surgical Bulletin, December, 1894, pp. 1417-1425, also 1434.

the yellow being easily seen in all the tissues. This class bears surgical interference poorly, and the author has often seen patients of this class die, shortly after operation, much to the surprise of the surgeon. This point of differentiation is not made, so far as is known to the author, in works of surgery.

When a patient is taking iodide of potassium, the indican test gives a peculiar red residue. With varying conditions of indicanuria, and the use of the iodides, the reaction will be reddish-blue or pink.

The degree and intensity of these various reactions enable the physician to determine with accuracy the various forms of digestive and hepatic disturbance. By these reactions the examiner can ascertain the extent of the various types and forms of metabolic disturbance, which, if allowed to continue uncorrected, will grow progressively worse, and finally lead to absolute and easily recognizable pathological lesions of the heart, lungs, liver, kidneys, or nervous mechanism, depending upon which organ is the most vulnerable. By a rise or fall in the intensity of the color reaction, the progress of the case can be positively determined and prognosis rendered with marked accuracy. Thus we find, that by an intelligent interpretation of the various indican reactions we have a very accurate guide both as regards diagnosis and prognosis.

THE VALUE OF SPINAL PUNCTURE IN DIAGNOSIS

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The general practitioner is too apt to leave the finer methods of diagnosis to the consultant.

Few of us think of making a blood count, a Widal reaction, a sputum examination or an examination of a culture from the throat. Still less do we think of spinal puncture as anything else than a rather formidable procedure to be undertaken only as a last resource, and with the advice of a consultant.

I hope to be able to show that, while spinal puncture is of course

not to be practised without thought, it is a method well within the province of the man doing general practice.

To be of value, the physician practicing this diagnostic help must first know how to perform the slight operation and then to properly examine the fluid obtained. The latter presupposes the possession of a microscope and knowledge sufficient to use it. This knowledge is common to all recent graduates and can be obtained by all of us by the perseverance in a little hard study. This much we owe to our patients.

TECHNIC OF THE OPERATION.—The only instrument necessary is a sharp hollow needle, three or four inches long and a little smaller than an ordinary match stick, with an obtinating wire. The operation should be performed under strict asepsis.

The needle is boiled. The lumbar and sacral region of the patient's back are scrubbed with soap and water, washed with bichloride solution and finally with alcohol. The operator's hands should be scrubbed and thoroughly soaked in bichloride solution and then in alcohol. These preparations being completed, the patient is laid on either side, the spinal column being bowed forward as much as possible. The point of puncture is close to the line of the spinous processes and between the second and third or third and fourth lumbar vertebræ. The needle is held directly perpendicular to the spinal column, and is plunged through the skin with a quick motion. The point of the needle is then directed slightly upward and toward the median line. If the aperture between the bodies is reached at once the needle is felt to slip into the spinal canal and the fluid at once begins to flow. If the needle impinges against the body of the vertebræ it is pushed gently in all directions until the aperture is found. If there is much bleeding and the fluid does not flow, the wire which has been boiled with the needle should be pushed into the calibre and a possible blood clot displaced. The operation is but slightly painful. It should be performed in all cases where the symptoms and physical signs point to a probable meningitis. If so performed and the fluid properly examined the operation will frequently clear up a diagnosis and point to a proper treatment; it will take but a short time. I have frequently performed the operation, found a normal spinal fluid, and the patient recovered none the worse for the procedure.

The following abstract of cases will serve to make my points clear.

Case I.—John A., aged four years, was admitted to St. Timothy's Hospital suffering from what was supposed to be typhoid fever. The child, however, had been taken suddenly ill with high fever and rather marked unconsciousness. On admission he had a temperature of 103° F., was unconscious, and had a stiff neck, a well-marked Kernig sign and a tache. Spinal puncture was made, a very slightly turbid fluid was removed. This was centrifugated and diplococci lying *outside* of the cells were demonstrated. Careful examination of the lungs showed small areas of consolidation. The child died and areas of consolidated lung were found, together with an intense cerebro-spinal meningitis. Pneumococci were demonstrated in both the meninges and the lungs.

Case II.—A boy, aged seven, was taken suddenly ill with fever and delirium while away at boarding school. On admission to St. Timothy's Hospital he was found to have the physical signs of meningitis with fever and delirium. A puncture was at once made. The fluid was opalescent, and on being centrifugated for a few minutes a large precipitate was found. Under a one-twelfth oil immersion this precipitate was found to be composed largely of polymorphonuclear leucocytes, and to contain from one to six diplococci in many of the cells. The case was clearly one of the epidemic form of meningitis and was isolated. Within a few days two other exactly similar cases were admitted and diagnosed in the same manner.

Case III. (seen with Dr. Devitt).—C. R., aged five years, was suddenly seized with vomiting. There was no fever. The bowels were loose. He vomited for two days and nights. I saw him on the third day, when he was slightly dull, had a distinct tache, but no other signs of meningitis. Two days later, there was slight strabismus with a temperature of 100° F. A spinal puncture showed a perfectly clear fluid. This was collected in sterile centrifuge tubes, and centrifugated in those tubes at a high speed for twelve hours. There was a very slight sediment containing a few lymphocytes. It was stained for tubercle bacilli and after a few minutes beautifully stained tubercle bacilli were found lying in a perfectly clear field. I think that the direct collection of the spinal fluid into sterile tubes is of great value. Previously when centrifugating was practised for a number

of hours and the tubes had not been made sterile, there was so much growth of contaminating bacteria, that an accurate observation was difficult.

Case IV.—Another case worth recording was that of a young woman, who was brought to St. Mary's Hospital with the history of a long siege of nursing, followed by headache for a day and sudden delirium. When brought to the hospital she was restless, semi-conscious, had a tache, no fever, and appeared to be hysterical. In a day or two she developed a fever and a nondescript rash (this latter proved to be due to atropine). A puncture was made; a clear, liquid free from germs of any kind was found. The case drifted into a demented condition. The puncture proved no meningitis.

Case V. (seen with Dr. Eichman).—A boy, aged four years, had a suppurating middle ear and a severe nephritis following scarlet fever. He was seized in the middle of the night with severe convulsions and high fever. These attacks were taken to be due to the uremic poisoning. In hope of relieving the convulsions, which were uncontrollable, a spinal puncture was made. To our surprise a turbid fluid was withdrawn, which on being centrifugated showed many polymorphonuclear cells, and very numerous cocci, some free, some within the cells. The convulsions and fever continued until death. To our surprise the child proved to have meningitis, which in all probability was the cause of the convulsions.

These cases tend to demonstrate a few of the points of value of a spinal puncture. The first case might readily have been mistaken for epidemic cerebro-spinal meningitis. In fact it was a pneumococcus infection. The second, so far as symptoms proved, was similar to the first, but the puncture showed the presence of the epidemic disease. The procedure in the third case was of great value, because it made certain a diagnosis of tubercular meningitis in a doubtful case. The fourth case was uncertain from the beginning, and the puncture showed at least that the patient did not have meningitis. I feel quite sure that no one would have thought of meningitis in the last case without a puncture. As a matter of fact, the puncture was performed as a therapeutic measure, but proved of diagnostic value. These cases all go to show the great diagnostic value of the procedure. Two of them were done on the ordinary routine of private practice.

General Retrospects

A REVIEW OF THE RECENT LITERATURE BEARING ON THE DIAGNOSIS OF GENERAL PARESIS

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The vast importance, for manifest reasons, of early diagnosis in cases of general progressive paralysis, together with the difficulties that are often present in making a positive diagnosis, give a special interest to every detail that may in the least be of aid. A study of the investigations of the past few years shows that while much attention has been given to the entire subject the diagnosis of incipient paresis remains to-day only too often an impossible task. It is in a sense remarkable that in spite of earnest and extensive investigation upon an abundant material by competent observers but very little has been established to aid us in early diagnosis. The literature bearing upon the pathological anatomy of the subject is indeed prolific, and in this branch of research a great deal has been brought out.

The fact that characteristic conditions of vascular changes in early paretic periods might be of service in diagnosis has led to a study of blood-pressure in cases of paresis. *Walton* used the Riva-Rocci instrument and his conclusions from an examination of 108 male patients are that the average blood-pressure, taken as a whole, is high. This is due to prevalence of atheroma with its cardiac and renal complications. The average blood-pressure in general paresis without atheroma, cardiac or kidney affection is lower than in health, but the variations are so considerable as hardly to justify general and absolute conclusions. The test as one for differential diagnosis between paresis and other allied cerebral affections is not likely to become of value. It is, however, of interest that we are enabled to form an opinion of the condition of the circulatory system in cases of paresis. These observations are too few for generalization with regard to the blood-pressure in varying emotional states. They tend to show that excited states in paresis may be accompanied by high or low blood-pressure; mental depression is oftener attended by high rather than low pressure. While the average tension in exalted

states is somewhat lower than in the other affective periods of general paresis, it is not inconsistent with high pressure or with atheroma with its cardiac and renal accompaniments.

Plaskuda gives the results of his study of blood-pressure in a case of paresis with the interesting and most unusual phenomenon of 568 convulsive seizures in 22 days, 11 attacks having occurred in one day. Measurements of blood-pressure with the Riva-Rocci instrument during one of the series of paroxysms showed increased tension rapidly rising during each seizure.

Among the several studies and observations upon reflex phenomena in general paresis *Gordon's* researches are of seemingly practical interest. The presence of his so-called paradoxical reflex in early motor involvement is of probable value in the early diagnosis of cord involvement. In a study of 60 cases of paresis he found the reflex present in 42; in 35 of these it appeared on both sides; in 7 on one side only. Together with increased patellar reflexes *Gordon's* reflex was present in 39; in 3 it was found together with absent knee-jerk. This is noteworthy in that in previous studies the paradoxical reflex was invariably found to be associated with increased patellar reflexes. From *Gordon's* studies of the other reflexes in this disease the conclusions are that the usual triad of reflex symptoms, viz., exaggerated knee-jerks, ankleclonus and Babinski's sign, common in hemiplegia and other organic lesions of the motor tract, are dissociated in general paresis. In a later discussion of this phenomenon, *Gordon* lays particular stress upon the manner in which his sign is elicited. This particular phenomenon is new and differs from the Westphal and Oppenheim reflexes. In early involvement of the motor path in paresis this reflex may be employed for diagnostic purposes.

Pilcz describes a certain form of sensory disturbance as pathognomonic of early paresis. It consists of hypesthesia, sometimes anesthesia of the entire body, except over a collarlike zone of variable location in different cases. This zone may be around the neck; it may have the form of a corset or girdle. Areas of sensory disturbance may also be found early in the disease on the posterior surfaces of the lower extremities. In the latter areas a hyperalgesia is common. Tactile impressions may be more distinctly felt than normal in the posterior lumbar and thoracic regions.

Laquer in discussing the diagnosis of the various forms of general paresis concludes that the recently established pathological findings of Nissl, Alzheimer and Binswanger are in accord with the newly recognized clinical varieties of general paresis. The tabetic, atheromatous and so-called stationary forms correspond clinically with post-mortem findings. The differential diagnosis based likewise on pathological investigation has become much more positive be-

tween general paresis and chronic alcoholism, diffused cerebral softening, brain-syphilis and senile dementia.

Spielmeyer, in speaking of the pathological data in general paresis complicated by tubercular affection of the brain, more particularly the cerebral cortex, emphasizes the difficulties in differentiating the tubercular from the paretic changes. Characteristic of both conditions is a meningo-encephalitis, evidence of regressive and progressive processes in the same portion of the parenchyma and of progressive inflammatory symptoms of the vascular apparatus. In such cases the entire absence of or the presence in only slight degree of histological changes in the meninges of the affected part speak rather for paresis. If in addition there is found in the convolutions with unaffected meninges marked glia proliferation as well as vascular involvement the diagnosis of general paresis is warranted.

In differentiating the classic picture of general paresis from an affection of the cerebrum presenting almost the same clinical features *Behr* says that the pseudo-paretic symptom complex may present the pupillary phenomena, convulsive seizures, progressive dementia, etc. These, however, are differentiated from true paresis by the longer duration of the symptoms, slower development of mental deterioration and finally by the pathological findings. The latter consist of subcortical fibre degeneration, often involving limited areas, neuroglia proliferation and resulting localized atrophy of the convolutions in the affected part. As etiological factor is given hyaline degeneration of the blood-vessel walls with resulting disturbance of nutrition. One must remember, however, that there are various forms of general paresis differing in their clinical manifestations in accord with pathological findings. *Seppila* and *Riva* have some years ago described a so-called senile form of true general paresis with distinct anatomical features. These show multiform true or dissecting aneurisms of the cerebral vessels, hyperplasia of the interstitial connective tissue and a diffuse atheroma of the vessel wall. The diagnosis is based upon atheromatous pulse, infrequency of apoplectiform seizures; in the psychic sphere, absence of expansive delusions.

The bacterial toxins as the cause of paresis while not altogether a recent contention have received some confirmation from *Robertson's* researches. He claims that the bacterial toxin enters the circulation by various channels. Invasion through the gastro-intestinal mucosa is frequent; the bacterium *coli* has been found. In sections made in a number of cases of paresis an organism very closely resembling the *Klebs-Loeffler bacillus* has been repeatedly found in the alimentary and respiratory tract and in a number of instances was present in the central nervous system. This investigator finds that a reduced

resistance of the mucous membrane due to syphilis, alcohol, etc., affords easier access to the toxic elements. The rôle of the syphilitic virus in the etiology of paresis is purely that of diminishing bodily resistance to bacterial invasion. He maintains that a microorganism, which he calls the bacillus paralyticus, is the direct cause of paresis. Verification of Robertson's findings is certainly necessary to establish their value in the diagnosis of paresis.

Geisler discusses the results of his study of the relation between trauma and the development of paresis. He concludes that trauma as the only etiological factor is most unlikely.

Näcke gives to hereditary predisposition first place among the etiological factors in paresis. In differential diagnosis this is a point of apparent importance.

The presence of febrile movements in the paroxysmal form associated with increase in the polynuclear elements in the blood and cerebro-spinal fluid in general paresis is the subject of a series of observations by *Pappenheim*. The importance of the finding of leucocytosis in the spinal fluid as a diagnostic factor in early paresis is further added to by the symptom-complex of febrile association shown by this author. Of still greater importance, however, are his studies which lend strong corroborative testimony to the importance of the toxin element as one playing a decisive rôle in paresis. This author shows that there are cases with paroxysmal temperature ascent together with the increase in the polynuclear cells in the blood and cerebro-spinal fluid. These seizures are contemporaneous with either paralytic attacks or convulsive outbreaks. He is of the opinion that the condition is due entirely to the specific toxin and refutes absolutely the theory that these febrile seizures are in any way dependent upon somatic changes quite independent of the cerebral affection.

Fischer, in Pick's clinic, has given some valuable studies confirming Kemmler's researches (1895) on the relation of rhythmic muscle tremor to the pulse frequency. It will be recalled that Kemmler demonstrated only crudely that the general fine tremor was synchronous with the pulse and varied with fluctuations of the latter. Fischer by means of a revolving drum and Marie recorder demonstrated positively what his predecessor in the work had originally developed.

In line with the work of Pilcz upon the prognostic value of the Argyll-Robertson pupil in paresis, is the more recent observation of *Weber*, who found the characteristic pupil-phenomenon in certain cases of cerebral degeneration upon the organic basis of primary arterio-sclerosis. In these cases the pupillary symptom-complex varies, being at times absent and again to be found in the same individual. Pilcz agrees with Binswanger in regarding these cases as probably a secondary subcortical encephalitis.

THE EARLY DIAGNOSIS OF UTERINE CANCER
(A REVIEW OF THE RECENT LITERATURE)

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The universal attempt made to aid womanhood suffering from cancer of the uterus has brought forth very little that is new during the past year.

A distinct advance has been made in Germany by publicity of the early symptoms and the urgent appeal to take heed of them among the profession and the laity.

According to *Clark*, 65 per cent. of all patients suffering with

cancer of the uterus are turned away as inoperable. There is a very small percentage of cases operated upon that is cured. There is no characteristic symptom of early cancer of the uterus. We must be on the lookout for deviation from normal menstruation in a woman in the cancerous age. We should look at every ulcer of the cervix as suspicious of carcinoma. There is great need of the laity being impressed with the fact of the importance of early consultation with a medical man.

The menopause should come about as a natural diminution with cessation or as an abrupt cessation, never with irregular floodings or leucorrhœal discharge. Both of the latter conditions are evidence of a pathological state. Atypical discharges in the menopause are not harmless. The terminal symptoms, pain, profuse foul-smelling discharge, cachexia, excessive hemorrhage are of value from a prognostic standpoint, but not diagnostic. They usually indicate inoperable carcinoma.

Heredity is of no value as a diagnostic sign. Carcinoma is a disease of middle life; 90 per cent. occur between the fortieth and fiftieth year. After sixty the dangers are the same as in women under twenty-three. Childbirth is a causative factor. In Sampson's 412 cases only 3 per cent. had not been pregnant. There is really no pathognomic sign. The suggestive signs which should lead to an exhaustive examination are as follows:

1. Any deviation of the menstrual period in the way of an excess or an inter-menstrual discharge in women above thirty years of age. The most suspicious forms of bleeding are:

- a. A mere show after a slight exertion, defecation or coitus.
 - b. Increasing length of period even only for one day more than is the patient's custom.

2. Exacerbation in amount or change in character of the discharge in a woman who may have had a simple leucorrhœa for months or years. A free aqueous, acrid or blood tint discharge is especially portentous.

3. A leucorrhœal discharge in a woman who has never suffered from it before.

4. Every atypical discharge in a woman after establishment of the menopause should elicit special care in examination.

5. Pelvic pain of more than a few days' duration is reason for examination, although pain is very seldom an early symptom of cancer.

The above symptoms do not point to a diagnosis, but to the need of a thorough examination upon which the diagnosis rests. Gross pathological appearances are sufficient for diagnosis. If in doubt, the microscope must be resorted to. As a rule erosion of the cervix is often a carcinoma. In suspected cases of cancer of

the fundus microscopical examination of the scrapings should be instituted.

In the report of the *Committee on the Cancer of the Uterus* to the section of obstetrics and diseases of women, A. M. A., the following statements are contained :

In cancer of the cervix early diagnosis is possible. In over 50 per cent. of operable cases, and a higher percentage of inoperable cases, there existed bleeding for six months without medical interference. In six months the disease spreads very rapidly. From 94 to 97 per cent. of patients apply for treatment when too late. An unaccountable bleeding or discharge should be followed by a physical examination.

Symptomatology of cancer of the uterine cervix :

1. It is a disease of middle life occurring from the thirtieth to the fiftieth year.

2. It occurs rarely in nullipara.

3. There is no characteristic sign ; but bleeding or blood-stained discharge is usually but not always present. The bleeding may be :

a. Slight, only a show at irregular intervals as on exertion, sexual intercourse, using a douche or straining at stool ; or it may be slight but constant, the patient's clothing being stained on taking them off at night.

b. In other cases bleeding may be more profuse, simulating a prolonged or irregular menstruation, or a return of the menses after the menopause.

c. In still other cases severe hemorrhage may occur, appearing either as a result of some unusual exertion, or during menstruation, or the cause may not be apparent.

4. In a small percentage of the cases bleeding may be absent, but usually some other sign such as an unusual leucorrheal discharge calls attention to the growth. In a small percentage of the cases all symptoms referrible to the growth may be absent for a long time.

5. Pain caused by the growth usually occurs later in the course of the disease and must be differentiated sharply from pain arising from pelvic trouble independent of the cancer, such as inflammatory conditions of the tubes, ovaries, etc.

6. It is evident that all women suffering from uterine bleeding or other symptoms referrible to the uterus should be examined as soon as possible, and if the diagnosis is not clear, the uterus should be curetted, or a small piece of the cervix excised for competent microscopical examination.

7. All symptomatic aberrations referrible to the generative organs of women about the menopause should be looked on as a possi-

ble beginning of malignant disease and an immediate examination should be urged.

The course of the disease is rapid. It passes beyond the limits of the uterus proper (and hence becomes practically incapable of complete eradication) in a period which varies from thirty days to six months from the outset of the earliest symptoms. When it runs its course undisturbed patients rarely live more than three years. About three quarters of them die within two years; about a third within one year after the first manifestations of the disease.

Probably from 75 to 80 per cent. of these patients in this country do not apply for treatment until the disease has progressed too far for anything but palliative measures. In only about 20 to 25 per cent. of the total cases of cancer of the cervix is a radical operation attempted. In the vast majority of these cases, a careful study of the gross specimen and microscopic sections from the outer margin will show that the surgeon has failed to remove all of the diseased tissues. The so-called rapid recurrences are really, therefore, continued growths. In these cases medical attendants have made an effort to save the patient's life, but the disease has unfortunately progressed too far for that result to be possible. Unfortunately in only 3 to 6 per cent. of the total number of cases of cancer of the cervix is an operation instituted early enough for the surgeon to circumvent the disease. It is only in this class of cases that the disease is completely eradicated.

Authentic cases of complete eradication of undoubted cancer of the cervix are so numerous as to leave no doubt that if the diseased tissues are completely excised and if the implantation of the cancer cells at the seat of operation is avoided, a permanent cure is not only possible but also probable.

Cancer of the body of the uterus is much less frequent than cancer of the cervix, grows much more slowly, and remains restricted to the uterus for a long time. For these reasons the diagnosis is usually made earlier in the course of the disease, and its operative treatment is attended with a lower primary mortality and a much higher percentage of cures. Cancer of the body of the uterus usually occurs at a more advanced age than cancer of the cervix, and is more frequent in women who have not carried children. *Von Rosthorn* is of the opinion that it may be the fault of the patients themselves that cancer in the early stages is not examined with necessary thoroughness, and that the minuter signs are not sufficiently noted and that surgical aid is sought too late. Irregular atypical discharges at the menopause must not be overlooked, and he believes that knowledge should be diffused broadcast on this subject.

According to *Noble*, fibroid tumors of the uterus predispose to the development of cancer of the body of the uterus.

The family physician should take cognizance of the symptoms indicating cancer, is advocated by *Werder*. In Germany, he continues, inoperable cases have been reduced from 80 per cent. to 50 per cent. by missionary work of the physicians and by spreading knowledge among the laity. According to figures the disease is on the increase. Cancer of the uterus is the most frequent form of cancer. Leucorrheal discharges and some irregular slight bleeding from the vagina are usually the first evidences of the development of cancer of the uterus.

Fetid offensive secretions and more or less intense pains are rarely found in the earlier stages of carcinoma, though characteristic of the later stages. Pain is absent as long as the cancer is confined to the uterus. When pain is present the cancer has already involved the extra-uterine structures by induration and infiltration, causing pressure on the sacrosciatic nerves. Leucorrheal discharges and particularly irregular bleedings from the vagina, especially after exertion, or following coition or defecation, should always lead to a thorough examination for possible cancer. After the menopause the above symptoms almost invariably signify cancer. Some authorities advise routine examinations several times a year of all women near the menopause. The menopause is a physiological process and does not give rise to abnormal discharges; profuse menstruation, floodings, etc., should always arouse suspicion. The indurated cervix with marked ulceration and unhealthy appearance, which bleeds at the slightest touch, or the cauliflower excrescences which are so friable that they break down when but gently touched, should arouse the grave suspicion of carcinoma. If in doubt, curetting with a dull curette or finger nail should be performed, and if pieces of tissue come away, the presence of carcinoma is certain. This friability of tissues is characteristic of carcinoma, except in the rare instances of scirrhus. This friability of the tissues is the most characteristic sign of carcinoma. *Thienhaus* states that the greatest obstacles to early clinical diagnosis are encountered in those cases of carcinoma of the cervix uteri which originate from the epithelium of the mucous membrane above the external os, or from the epithelium of the deeper glands of the same region. In the examination of such cases one is apt to find that, while the external os may be of its natural size and appearance, immediately above it a crater-like cavity, lined with friable tissue, is encountered. In addition to this, hard nodules or infiltrations may be found on one or both sides of the uterus—the result of extension of the carcinoma into the broad ligament.

No country or race is immune to cancer of the uterus, says *Bovee*, though *Vineberg* claims partial immunity among Jewish women. *Bovee* saw uterine cancer among negroes. The affection appears of microörganismic origin. It is local originally, but 80 per

cent. of the cases that come under the physician's care are not any longer localized. It spreads by the lymphatics and to the ligaments.

Hemorrhage, pain and foul discharge point to cancer, but they are no absolute proof for its presence, says *Montgomery*. Cancer of the vaginal portion, he maintains, is easily recognized. In involvement of the cervical canal there is an irregularly increased size of the cervix and a sensation of increased resistance affecting a part of this portion of the uterus. It may be necessary to excise a portion for microscopical examination. In cancer of the body of the uterus there is an infiltrated area giving a sensation of rigidity and resistance in the majority of instances, but it does not always increase the resistance of the organ, or a polypoid mass may form in the uterus.

In a discussion on measures to be recommended to secure the earlier recognition of uterine cancer *Spencer* states that more women die of cancer of the uterus than of cancer of any other part of the body. The highest mortalities occur among women of from forty-five to fifty-five years of age. The reason is that patients come to the physicians too late. Cancer of the body of the uterus is less virulent than cancer of the cervix. As a rule early cases are curable. Glandular infection is very rare in early cases. The reasons for failure to recognize early carcinoma are the following:

1. The patient's ignorance of the early symptoms of the disease.
2. The physician's delay in examining a patient who has the early symptoms of the disease (abnormal hemorrhage and discharge).
3. The patient's disinclination or refusal to submit to examination.
4. The occasional difficulty in distinguishing between benign and malignant tumor especially in the body of the uterus.

Patients are ignorant of the main features of the disease, viz., that it may occur in young women; that the main symptoms are abnormal hemorrhage and discharge; that it is not as a rule attended by pain in its early stages; and that it is then curable by operation involving little risk to life. Patients regard hemorrhage and discharge at the menopause as of little consequence, when every such case requires immediate examination. Any hemorrhage from the uterus after the menopause is in the majority of cases due to cancer. Patients do not know that it is impossible to make a diagnosis of cancer without a vaginal examination. In some cases, especially in widows, the disease may exist for some time without giving rise to symptoms. Every suspicious case should be examined locally. The general public is to be informed of the early symptoms and advised to seek medical aid early. Friability of the growth, or ulcer, and bleeding on examination are the most important features. If neces-

sary a small piece of tissue is to be excised for microscopical examination. The clinical features are to be taken into consideration with the microscopical findings, especially as the rare form of adenoma malignum of the cervix closely resembles the normal glands under the microscope. In case of cancer of the body of the uterus the cervix should be dilated that the finger may be introduced. Soft growths of whitish color, removed from the body of the uterus, are almost always cancerous, as are also friable growths in mass and an irregular ulcerated cavity. The curette may be used lightly.

Strassmann, of Berlin, in the same discussion, stated that information pertaining to the early symptoms of cancer of the uterus is being spread broadcast among the profession, the midwives and the laity in Germany, with excellent results.

Ryall, another participant in the discussion, said that cancer may appear without any pain or impairment of health or may even reach the incurable stage without causing much discomfort. Cancer of the womb is generally associated with some discharge or bleeding. The discharge varies in character and may be thick, watery, blood stained or offensive. The bleeding may be small in quantity or excessive, may occur at or between the monthly periods. Any bleeding, no matter how small, which occurs at an unusual time requires investigation. Women afflicted with serious symptoms think the latter are due to change of life and of little importance. This delay is the cause of so many being incurable.

Swayne maintains that there is a vital necessity of exploring the uterus in all cases after pregnancy terminated by abortion or ordinary parturition which are followed by intractable hemorrhage.

Progress of Diagnosis and Prognosis

GENERAL METHODS OF EXAMINATION—SYSTEMIC AFFECTIONS—DISORDERS OF GENERAL MET- ABOLISM—INFECTIOUS DISEASES

Photographing Superficial Bacterial Colonies—DE JAGER, Zentralblatt für Bakteriologie, 1908, No. 1.

The method is as follows: A piece of smooth, thin, well-gummed paper is pressed against agar or gelatine plates (10%) and drawn off like in hectographing. After the paper has been dried, it is held over a flame like a cover glass, then sprinkled with a solution of concentrated toluidinblue. By this method the colonies are stained dark blue, the paper light blue. A few minutes later the preparation is washed with water and again washed with boiling water. If the paper is to be used as a negative, it must be impregnated with oil, then covered with a thin layer of collodium and the photograph paper.

MILL.

Contribution to the Knowledge of Blood Lipases—H. PRIBRAM, Zentralblatt f. innere Med., 1908, No. 4.

Lipase may be demonstrated in the serum of some febrile conditions. Of course, it is possible that the usual milk diet, which is pursued during such febrile states, is responsible for the production of fat-splitting ferment. It is not improbable that the ferments of the circulating blood are dependent in a certain measure upon the character of the nourishment.

WESTERN.

Volumetric Determination of Urinary Albumin by Acid Phospho-tungstic—I. TSUCHIYA, Zentralblatt f. innere Med., 1908, No. 5.

Author uses an alcoholic solution (acid phospho-tungstic 1.5, acid hydrochloric conc. 5.0, alcohol absol. 100 grams). The test may be made in the Esbach tube. The method gives more trustworthy results than the Esbach reagent.

MILL.

Two Abnormal Findings in the Urine of Children—E. STIRNIMANN, Corresp. Blatt f. Schweizer Aerzte, 1908, No. 2.

First—Violet-colored urine in consequence of a thymol body contained in tincture of arnica. Indican test was negative. Second—Waxy casts and spiral leucocytes, no albumin, no sugar, but urobiline.

MILL.

The Influence of Albumin-Metabolism upon Acetonuria—F. ROSENTHAL, Zentralblatt f. innere Med., 1908, No. 8.

The degree of an acetonuria when under a regimen rich in albu-

min and poor in carbohydrates depends apparently upon the ability of albumin to form carbohydrates. MILL.

Preliminary Communication Concerning a Method of Serum-Diagnosis in Syphilis—KLAUSSNER, Wiener klin. Wochenschr., 1908, No. 7.

By superficial scarification of the back the author obtains 4-5 cc. luetic blood, from which, after centrifugation, the serum is decanted, which is again submitted to centrifugation. When the serum is entirely clear, 0.2 cc. of it is mixed with 0.7 cc. distilled water and kept in tubes at room temperature. After from five to fifteen hours luetic sera contain in all cases a sediment two to four millimeters high, which is not found in non-syphilitic sera. After twenty-four hours only, the non-syphilitic sera show a small sediment, which may be readily distinguished from that of the syphilitic sera. As the sediment dissolves in physiological salt solution and in concentrated acetic acid, it consists of coagulated globuline, which occurs more readily and in larger amount in luetic than in non-luetic serum. The same reaction was observed in croupous pneumonia with high fever, but not in typhoid fever. The reaction is possibly not characteristic alone for syphilis, but also for other pathological processes in which globuline is readily coagulated, or in which antibodies are formed.

MILL.

Serum-Diagnosis of Syphilis—NOBL and ARZT, Wiener klin. Wochenschr., 1908, No. 9.

The lecithin method gives better results than the Klausner method. Not rarely, however, the reaction is negative in the face of manifest syphilis, and it is positive when this is absent. Authors recommend the test for the recognition of syphilis in wet-nurses.

MILL.

The Value of the Complement-binding Reaction for the Diagnosis of Syphilis—R. MÜLLER, Wiener klin. Wochenschr., 1908, No. 9.

In spite of frequent abortions and the presence of syphilis in the husband, the serum of women may not give a positive syphilis reaction. On the other hand, the serum of the children may give negative reaction when that of the mother has reacted positively.

RICHARD.

Hemolytic Icterus—CHAUFFARD, La Semaine médicale, 1908, No. 5.

The fundamental difference between hepatogenous and hemolytic icterus is that the latter is derived by hemolysis and not from retention of bile. Clinically, hemolytic icterus is characterized by absence of bile retention and its subsequent phenomena, and by the more or less pronounced splenic tumefaction. The congenital form admits of a better prognosis than the acquired form. There is no specific therapy.

MILL.

The Cutaneous Tuberculin Test (von Pirquet) in Infancy—M. FEER, Münch. med. Wochenschr., 1908, No. 1.

The younger the child the more certain is the diagnosis of tuberculosis by the positive reaction of von Pirquet. In infancy the Pirquet test has advantages over the conjunctival test. The injection consists of one gram tuberculin which is mixed with one gram carbolic acid (5%) and two grams physiological salt solution. After from six to twenty hours, a papule is developed at the place of injection, which is a positive sign for the presence of tuberculosis. In case there is no reaction—that is, if no papule appears—tuberculosis cannot be absolutely excluded.

MILL.

Cutaneous and Conjunctival Tuberculin Reactions—MORELLI, Wiener klin. Wochenschr., 1908, No. 3.

The diagnostic value of these reactions is small. It is true, the positive reaction points to the presence of tuberculosis with a great degree of certainty, but one can never determine if the reaction has been called forth by the diagnostic process or by any obsolete tubercular focus in the organism. The negative reaction points against tuberculosis in cases in which there is suspicion of its presence, but this negative result is by no means conclusive.

WESTERN.

Von Pirquet's Tuberculin Test in Adults—F. JUNKER, Münch. med. Wochenschr., 1908, No. 5.

Von Pirquet's test applied in 10% solution will give positive results in adults. The characteristic signs of positive reaction are redness, demarcation, long persistence and infiltration.

MILL.

Is There Any Danger to the Eye from the Ophthalmo-Tuberculin Reaction?—DE LOPER, Revue franç. de méd. et de chirurgie, 1908, No. 2.

Diagnostic instillation of tuberculin into the conjunctival sac may cause severe conjunctivitis, especially in children. As a rule the conjunctivitis will disappear in a few days, in other cases the occurrence of superficial ulcerations of the conjunctiva may be observed ten to twelve days after the specific reaction has subsided. In one case the author has seen immediately after the reaction a keratitis followed by an irido-cyclitis; in another case, that of a scrofulous child affected with old ulcerations of the cornea, he observed bilateral acute keratitis.

MILL.

Calmette's Ophthalmic Reaction to Tuberculin—F. SMITHIES and R. E. WALKER, Jour. A. M. A., Jan. 25, 1908.

The "ophthalmo-," or "oculo-," or the "ophthalmic," reaction to tuberculin described by Calmette, is based upon the observation that when one drop of a 1 per cent. glycerin-free solution of tuberculin,

in distilled water, is instilled into the conjunctival sacs of individuals clinically tuberculous, there occurs a more or less characteristic, local, inflammatory reaction.

The authors conclude that the ophthalmic reaction, when practised according to Calmette, is of undoubted service in the diagnosis of tuberculosis. In no case where the reaction could be tested clinically by the finding of tubercle bacilli did they fail to obtain decided ocular manifestations following the instillation of the tuberculin. The reaction was not obtained by the authors in the case of 126 individuals affected with diseases other than tuberculosis. It was not obtained in 74 apparently normal adults. RICHARD.

Diagnosis of Tuberculosis by Inunction of Tuberculin—E. MORO, Münch. med. Wochenschr., 1908, No. 5.

Inunction of an ointment consisting of equal parts of tuberculin and lanolin into the skin of the abdomen, without previous scarification, gives the same result as the ophthalmo-test, but is less harmful and should be preferred in scrofulous children. MILL.

The Cutaneous Tuberculin Reaction—L. M. WARFIELD, Jour. A. M. A., Feb. 29, 1908.

The cutaneous tuberculin reaction of von Pirquet is a perfectly harmless procedure. All adults do not react to the same. It is of value in the so-called pretuberculous period. No reaction precludes tuberculosis in an active form so far as we can be sure of the results of any one test. A positive reaction does not always mean active tuberculosis. RICHARD.

On the Pathological Metabolism of Gout—T. BRUGSCH and A. SCHITTENHELM, Zeitschr. f. d. ges. Physiol. u. Pathol. d. Stoffwechsels, 1908, No. 1.

In gouty individuals there is an anomaly of the metabolism of the purin bodies in the interval between the attacks. The endogenous uric acid in the blood is augmented, and in the urine it is diminished. Ectogenous uric acid metabolism is decreased and there occurs tardy uric acid excretion and relatively increased elimination of purin bases. These disturbances do not depend upon retention of uric acid on account of impaired renal activity, but are the consequence of an abnormal metabolism of purin substances. The assumption that the etiological factor of gout is a disturbance of the uric acid-forming ferment is entirely untenable. Again, there occurs neither disturbance of the glycoll excretion, nor is there any evidence of an anomalous proteid metabolism. All other symptoms of gout also depend upon the impaired purin metabolism. WESTERN.

Local Arteriosclerosis—F. FREMONT-SMITH, Jour. A. M. A., March 7, 1908.

Local manifestations of arteriosclerosis are quite independent of

general vessel degeneration, often wanting in subjective symptoms, usually free from arterial hypertonus. Arterial hypertonus exists in some instances independently of arteriosclerosis, and may or may not produce, or be associated with causes which produce cardiac vascular phenomena. Arteriosclerosis exists independently of arterial hypertonus as both a general and a local disease, and the absence of hypertension must not be regarded as security from dangers arising from arterial degeneration.

WESTERN.

Myxedema with Atrophy and Hypertonia—W. FRIEDJUNG, *Jahrbuch für Kinderheilk.*, 1908, p. 110, etc.

Baby of healthy parentage with all characteristics of myxedema, except the skin symptoms. As thyroid medication had good effect, the author concludes that the case was one of genuine myxedema.

MILL.

The Importance of the Early Recognition and Treatment of Rachitis—T. S. SOUTHWORTH, *Jour. A. M. A.*, Jan. 11, 1908.

Confronted with a case of rachitis presenting but few of the classical symptoms, viz., large square head, narrow chest, marked rosary, pot belly, bowed legs, enlarged epiphyses, delayed dentition, head sweating, open fontanel and lumbar kyphosis, or with one which instead of having reached its full development is still incipient, the practitioner whose knowledge of rickets is derived from books only or from the advanced cases presented in clinics may either hesitate to pronounce the case as one of rachitis or be led by the prominence of some associated symptoms, such as obstinate constipation, chronic intestinal indigestion, convulsions or bronchitis, to overlook the underlying cause and so miss the opportunity of striking at the root of the real etiologic factor. It is a too common error to assume that because some of the usual symptoms are lacking the affection cannot be rachitis. The disease may manifest itself under many guises. The epiphyses at the wrist may be enlarged while the bones of the head are apparently normal. Again, the head may show varying degrees of enlargement and squareness due to overgrowth of the frontal and parietal bosses with no recognizable involvement of the epiphyses. Enlargement of the costo-chondral junctions, commonly known as beading of the ribs or the rachitic rosary, is probably the most constant symptom of all, and even when not recognizable externally by palpation, may be present on the inner surface of the thorax. The real menace of rickets, both during infancy and more remotely in the later life of the individual, lies in its more subtle effects on the organism. In addition to convulsions and pneumonia, there are dangers from laryngismus stridulus and chronic intestinal indigestion, while the greater liability of the contracted chest to tuberculous disease in later life, and the danger to the

parturient mother and her infant from rachitic deformities of the pelvis, are matters of general observation. WESTERN.

Subacute Polymyositis, with a Report of Three Cases—B. T. BURLEY,
Jour. A. M. A., Jan. 18, 1908.

Many physicians have been slow to accept the fact that inflammation of muscles may occur diffusely over the body and constitute a distinct disease, it being long held that muscle became inflamed only from local causes. The recent accumulation of cases in which general swelling and tenderness of the muscles was the prominent symptom leaves little room for doubt that they form types of a particular constitutional disease. For some years the severe form of the disease alone was recognized, but more recently attention was called to milder types, which heretofore have probably escaped notice by being designated as rheumatism, synovitis, etc. The onset of the disease is usually insidious and gradual. A general feeling of malaise and fatigue composes the typical early symptoms. Occasionally there are mild gastric symptoms with anorexia, nausea and headache. Soon the symptoms become more localized and there supervenes soreness in the muscles when the extremities are used. This soreness is often attended by cramps in the muscles. Objective symptoms soon manifest themselves. The subcutaneous tissue becomes swollen not only over the most affected muscles, but in any part of the body where the skin is not tightly bound down. This edematous swelling may become very marked, even obliterating the natural contour of a limb. It is usually less toward the extremities of the limbs. Edema of the eyelids and face has occasionally been marked. This edema is apparently of inflammatory origin, for it does not pit on pressure and often shows a marked peculiar redness not unlike that seen in erysipelas. Palpation of the muscle is difficult when this edema is marked. The consistency of the muscles is either hard and distended, tough and inelastic, rarely soft and doughy. Different parts of a muscle may be of variable firmness. Infiltration and consequent shortening of the muscles bring about an approximation of the two ends after some time. In this manner movable parts like the extremities become drawn up at the joints and we get the characteristic attitude of flexed arms and legs in the later stages of the disease. Atrophy naturally follows the destructive process in the muscle and is a prominent feature in chronic cases. Tenderness of the muscles to pressure is marked in the acute stage. Polyneuritis and myositis may occur together. The superficial reflexes are present unless interfered with by a marked edema. The deep reflexes vary with the severity and locality of the muscular involvement. Temperature and pulse are raised. The urine shows nothing characteristic. Blood changes do not occur as a rule. When the physician's attention has once been drawn

to this disease he will rarely fail to make the diagnosis. The differentiation from trichinosis and from polyneuritis presents the chief difficulties. Other affections that occasionally resemble this condition are phlebitis, periostitis and osteomyelitis, rheumatism and pyemic abscesses. Since we know the constitution of the blood in trichinosis, especially the eosinophilia, we have a very valuable aid to diagnosis. The accumulated evidence shows that in trichinosis there is constantly an increase of eosinophiles of from 10 to 50 per cent. with a corresponding decrease of the neutrophiles. Leucocytosis, too, is more common in trichinosis. As against a polyneuritis, the facts pointing toward a polymyositis are: Tenderness over the affected muscles rather than along particular nerves. Inflammatory edema involving muscles and cutaneous tissues. Absence of anesthesia or paresthesia. Syphilitic myositis is a rare affection which may be mistaken for polymyositis. The more general the involvement of the muscles and cutaneous tissues, with a persistent elevation of temperature, the graver the prognosis. The most dangerous single symptom is involvement of the muscles of deglutition, whereby the saliva is not diverted from the respiratory tract and lung complications occur. Myocardial involvement adds greatly to the danger.

WESTERN.

New Method for the Determination of Intestinal Bacteria with Especial Reference to Typhoid Bacilli—L. HESSE, *Centralblatt f. Bakteriologie*, 1908, No. i.

The determination is based on the systematic comminution of the feces by means of distilled water. A small particle of the feces is placed upon a glass dish and rubbed down with ten parts of distilled water, a particle from this comminution is placed on another glass dish and again treated with ten parts of water. This process is continued until the eighth sample has been comminuted—that is, until the resulting preparation represents the 1000.000.000th part of the original feces particle. Typhoid and paratyphoid bacilli grow on the plates within twenty-four hours to colonies of 2 to 4 cm. diameter, which can be differentiated macroscopically from colon bacilli.

MILL.

Meat-poisoning and Widal's Reaction—H. LIEFMANN, *Münch. med. Wochenschr.*, 1908, No. 4.

In certain forms of meat-poisoning when the bact. enteriditis Gaertner is present, a positive Widal reaction may occur, and then such cases of poisoning may be taken erroneously for typhoid fever.

MILL.

On Paratyphoid Meningitis in the Nursling—ARZT and BÖSE, *Wiener klin. Wochenschr.*, 1908, No. 7.

Paratyphoid infection is not infrequent in the nursling. The affection originates probably in the intestines and leads to bacteremia, and will be recognized much more frequently in the future when our diagnostic means have been perfected. MILL.

Atypical Typhoid Fever—J. P. BATES, Jour. A. M. A., Feb. 22, 1908.

Certain forms of continued fevers occur in the Southern States of the Union and in Panama, and no doubt in many other portions of the world, which are resistant to quinine; they are too long in their course to be malaria fever. They are too mild in their symptoms and too short in their course to meet the clinical requirements usually expected of typhoid fever. There is, first, a fever that continues for about one week, irregular in its course, the temperature rising scarcely above 100 degrees F. It has no symptoms except some bronchitis and malaise. Second, a febrile state that continues from seven to ten days, with a temperature which may reach as high as 102 degrees F. or more. There may be few or no symptoms, but there is generally headache, bronchitis, some reddening and coating of the tongue. The patient is willing to keep his bed. The appetite remains good. Abdominal symptoms are absent. This second group of atypical typhoid is the most important. It occurs more frequently and causes the greatest difficulty in differentiating it from malaria fever. It is nearly always accompanied with bronchitis. One lobe of the lung may be dull on percussion, and suppressed breathing may be noted on auscultation. The bronchitis disappears early with free mucopurulent expectoration. Where malaria is not prevalent it is easy to mistake these cases for acute bronchitis or sporadic influenza. There is a third group of these atypical fevers in which the temperature, ranging from normal to 100 degrees F. or a little above, continues for two weeks or more. In this class of fevers there occur all the usual symptoms of the typical typhoid fever: low muttering delirium, sometimes wild mania; a red, pointed tongue, tympanites, and retention of urine. After the close of defervescence there is nearly always a second rise of the temperature lasting a variable length of time and corresponding to the second rise or "febris carnis" in the more typical cases. These fevers have to be considered typhoid in nature because their numbers always increase as the number of typical typhoid fevers increase; because they occur in the same houses and same surroundings from which we meet or receive the typical cases. Furthermore, they frequently relapse, and the relapse may be, and often is, more severe than the initial attack; and they give about the same proportion of positive Widal reactions as the typical cases. Finally, two post-mortem examinations on this class of cases positively proved their typhoid character—one died in relapse, one from perforation. WESTERN.

The Value of Stained Smears in the Diagnosis of Diphtheria—E. BURL-VILL-HOLMES, N. Y. Med. Jour., March 21, 1908.

The following conclusions are offered: No pseudomembranous angina should be considered as one of diphtheria if, after careful and proper culturing and competent examination, the Klebs-Loeffler bacillus is absent. Cultures and smears should be made in every case irrespective of the appearance of the parts involved. Typical pictures of follicular amygdalitis frequently show large numbers of virulent bacilli. When in doubt, and until smear and culture can be examined, all cases should be treated as diphtheritic in origin. The grouping of the bacilli, rather than the morphology, is the more valuable aid in the identification of the bacillus in both smear and culture. For immediate diagnosis smears are of great value; indeed, from the results obtained it would tend to show that on the whole they were as valuable.

RICHARD.

Anthrax Infection with Unusual Entrance—F. G. A. MEYER, Deutsche med. Wochenschr., No. 3.

Apparent diphtheritic patches upon the tongue proved to be of anthracic nature.

MILL.

Orthostatic Symptoms in Purpura of Children Affected with Hereditary Tuberculosis—A. WOLF, Archiv f. Kinderheilk., 1908, No. 4.

In five cases there were no symptoms of pronounced tuberculosis, but of purpura. Three cases were affected with orthostatism—that is, a recurrence of hemorrhages after leaving bed. Purpura is not an idiopathic disease of homogenic etiology. It is produced by a relatively too high blood pressure, to which the blood vessels do not offer sufficient resistance. Purpura in hereditary tuberculosis bears an orthostatic character.

MILL.

Metastatic Affections of the Pancreas in Mumps—W. EDGEcombe, The Practitioner, Feb., 1908.

The features common to five cases of the associated conditions were: Rapid subsidence of the parotid swelling, vomiting, pain and tenderness in the epigastrium, and constipation. Fever was present in all cases except one. In only two of the cases was a distinct swelling of the pancreas felt; in the others distention of the abdomen rendered palpation difficult. In all cases except one acetone and diacetic acid were found in the urine; glycosuria was not observed. Slowing of the pulse was a marked feature in some of the cases, and it is interesting as suggesting that the slow pulse, commonly observed in jaundice, and usually attributed to the action of the bile salts, may in reality be due to a concomitant affection of the pancreas.

WESTERN.

Yawning: Its Prognostic Significance—R. GEIGEL, Münchener med. Wochenschr., Feb. 4, 1908.

As soon as a sick individual yawns the crisis is past and he is on the road to recovery; a very sick individual does not yawn.

ZIMMER.

RESPIRATORY AND CIRCULATORY ORGANS

Differential Diagnosis of the Stenoses of the Upper Air-Passages in Children—D. GALATTI, Allg. Wiener med. Ztg., 1908, No. 4.

Differential diagnosis of the stenosis of the upper air-passages in children cannot be accomplished without knowledge of the etiology. Inflammations, functional disturbances, spasmus glottidis and similar processes may cause stenoses. Stenoses of upper air-passages in early life, which are not the consequence of the common etiological factors of larynx stenosis, are characterized by the sudden onset of the apnea and its short duration. Stenosis from polypi is a rare occurrence. Perichondritis, as a consequence of ulceration, granulations growing under the influence of recurrent catarrh, secondary syphilis, persistent swelling of the submucous tissue may also call forth stenosis. Immobility of the arytenoid cartilages is not rare after croup.

MILL.

Deviations of Larynx and Trachea, Especially the Oblique Position of the Glottis in Pulmonary Tuberculosis—G. BAER, Deutsche med. Wochenschr., 1908, No. 9.

In pulmonary tuberculosis the oblique position of the glottis is a frequent occurrence; not so frequent are changes in the position of the trachea. Author assumes that the cause of these malpositions is the atrophy of lung and pleural tissue which results in dragging of the organs.

MILL.

Exudative Pleurisy in Children—D. LSOKOLOW, Jahrb. f. Kinderheilk., 1908, No. 1.

Author found by means of skiagraphy that the free exudate in the pleural sac collects at first in the lower lateral part; that the highest point of the fluid accumulation is not medial, as is generally opined, but lateral in the posterior axillar line, and that the exudate is not shifted according to the posture of the body.

MILL.

On the Symptomatology of Exudative Pleuritis—v. SCHRÖTTER, Münch. med. Wochenschr., 1908, No. 4.

History of two cases proving the mechanical influence of intrathoracical processes upon position and form of the trachea. Bronchoscopic examination showed compression of one main bronchus on

the side of the pleuritic exudate, and dislocation of the carina of the trachea. MILL.

Intercostal Abdominal Hernia—P. ALQUIER, *Archives générales de chirurgie*, Jan. 25, 1908.

Intercostal abdominal hernia is a rare condition, and is always of traumatic origin. It occurs on the left side of the body at the level of the sixth, seventh, eighth, ninth and tenth intercostal spaces. It is located at the anterior extremity of these spaces. As a rule it does not involve the pleural cul-de-sac, but at times it may develop through the pleural cul-de-sac. No sac is present in these hernias. The contents may be adherent to the deep layers of the skin.

CRONSON.

Traumatic Pneumonia—J. J. KING, *Jour. A. M. A.*, March 21, 1908.

Traumatic pneumonia is that form of pneumonia which follows direct or indirect injury to the lungs. The trauma is no more than a predisposing cause of pneumonia. The microorganism is the exciting cause, without which the disease will not develop. The affection is characterized by the usual signs of pneumonia. When foreign bodies have been aspirated there is generally a definite history of sudden onset, and usually there is an initial attack of coughing when the foreign body enters. Frequently there is hemorrhage or bloody sputum brought forth by the cough, which is more or less constant. There may be localized pain. Prostration is frequently marked in these cases. A clear history will aid greatly in the diagnosis. The prognosis is grave. The mortality of all cases of foreign bodies in the lungs or in the bronchi, when treated by the expectant plan, has been estimated at from 56 to 80 per cent. When tracheotomy is performed the death rate is lowered to about 30 per cent.; however, these figures are not accurate. Some of the fatal cases are not reported, while others, presumably cured, may later die of complications, as empyema, atelectasis or abscess of the lung.

WESTERN.

Progress in the Diagnosis of Cardiac Affections—A. HOFFMANN, *Deutsche med. Wochenschr.*, Jan. 2, 1908.

A retrospect of a number of diagnostic means advanced or improved during the last years. Continued observation of the heart sounds and murmurs by esophageal auscultation evidences that gallop rhythm is not as portentous a phenomenon as generally believed. Gallop rhythm, transient as well as permanent types, has been observed in an otherwise normal heart.

ZIMMER.

Graphic Method for the Detection of Acoustic Phenomena of the Heart—E. ROOS, *Deutsches Archiv f. klin. Med.*, 1908, Nos. 3 and 4.

Author applied the Marbe method and found it very useful.

This method is based on the fact that the velocity of a gas, conducted through a Marey apparatus, changes with the vibration of the membrane, and that the contraction-curve of the passing and lighted gas can be noted on a rotating lamp-black strip. By this method it will be shown that the systole may shorten without accompanying change of the pulse frequency.

MILL.

How to Estimate the Functional Power of the Heart—P. C. FRANZE, N. Y. Med. Jour., March 21, 1908.

Blood pressure. In absolute insufficiency of the heart blood pressure must fall. This is the rule, but not one without exception. Again, mere fall of blood pressure is no indication of cardiac weakness. High pressure is no sign of strong heart. The value of blood pressure is minimized as a means of judging the cardiac power. Gräupner has developed a method of utilizing the alterations in blood pressure after specialized exercises in certain groups of muscles (extensors, flexors of the upper and lower extremities) as an aid to estimating the heart's power. *Pulse.* Frequency, rhythm and volume of the pulse are quite useless in themselves as criterions of the heart's strength, for they are subject to nervous influences. *Respiration.* Dyspnea in rest speaks for cardiac failure. Its absence, however, is no guarantee for a sound heart. *Urine.* Scanty urine, high specific gravity, and albuminuria are signs of a weak heart, if other sources are excluded. The absence of these symptoms is, however, no proof of a sound heart. *Cyanosis.* In a person with sound lungs cyanosis is a valuable aid in the diagnosis of a weak heart. *Size of heart.* As a rule a heart of sufficient functional capacity is non-dilated, and begins to dilate when compensation begins to fail. The size of the cardiac diagram is to some degree a means of forming an opinion as to the functional activity of the organ. For this purpose the most exact measurements only can be relied upon. Such measurements can be made by skiagraphy (orthodiagraphy) or by "teloroentgenography." Of all methods and signs, Gräupner's method and those by X-rays are the most valuable in themselves according to the author. Even taking all symptoms and methods into account, there is no absolutely exact way to determine the functional power of the heart.

WESTERN.

Dicrotic Pulse as a Diagnostic Symptom in Aorto-Mitral Insufficiency—

L. F. DMITRENKO, Zeitschr. f. klin. Med., 1908, No. 3.

Author describes three cases of synchronous aortic and mitral insufficiency in which the pulse-curve, in spite of severe compensatory disturbance, did not show dicrotism. In a case of ulcerative endocarditis with following insufficiency of the aorta, there was fever and failing compensation, but no dicrotism. The diagnostic value

of the dirotic pulse is not definite as far as insufficiency of the aorta is concerned. MILL.

Tachycardia of Tuberculous Disease—J. LÉQUYER, *Gazette médicale de Nantes*, March 7, 1908.

Tuberculous individuals may be subject to a type of tachycardia which bears no apparent relationship to the specific instance of the disease and which does not correspond to the temperature elevation. This tachycardia may ensue in acute as well as chronic tubercular disease. It may make its appearance even before the usual clinical symptoms have manifested themselves. In other cases it does not supervene until very late in the disease. In many cases there is a normal or almost normal temperature, but the pulse is between 100 and 110. An elevation of temperature to 100 or 102 degrees F. brings the pulse to 130 and even 140. Although accelerated, the pulse remains regular, as a rule; arrhythmia supervenes in exceptional cases in the beginning of the disease, but it occurs frequently in its advanced stages. ZIMMER.

Case of Congenital Cardiac Anomaly—L. SCHABAD, *Arch. für Kinderheilk.*, 1908, No. 5.

Boy, nine years old, suffering from cyanosis and dyspnea. Percussion and X-ray examination show hypertrophy of the heart. Intense systolic pulmonary murmur. Absence of edema, good compensation, hyperglobulia (7,500,000), high degree of hemoglobin (115%), justify the diagnosis of hereditary vitium cordis, especially pulmonary stenosis. There is probably a perforation of the ventricular septum. MILL.

So-called Periarteriitis Nodosa—C. BENDA, *Berliner klin. Wochenschr.*, 1908, No. 7.

Periarteriitis nodosa, so-called, is in reality an affection characterized by acute, multiple aneurisms of the small arteries. We do not know whether the affection originates by inflammation or in a mechanical way. The disease, in its localized forms, is rare and remarkable. If the disease is of an inflammatory nature it should be known as mesarteriitis. MILL.

Diagnosis of Arterial Closure in Gangrene of the Foot—A. MOSZKOWICZ, *Mitteil. a. d. Grenzgebieten d. Med. u. Chir.*, XVII, 1 and 2.

There is divergence of opinion among surgeons as to the site for amputation in gangrene of the lower extremity. In order to determine the state of the blood vessels, it is advised that the affected leg be rendered bloodless by means of an Esmarch bandage, and that the latter be suddenly removed. In a healthy leg sudden removal of the bandage is followed by an active red hyperemia extending to the

tips of the toes. If the vessels are diseased the hyperemia occurs more slowly and extends to the point where the vessels are in a healthy condition.

CRONSON.

ALIMENTARY TRACT

An As Yet Not Described Sign of Esophageal Stricture—P. M. REV-
IDTZEY, *Semaine Médicale*, Feb. 19, 1908.

Swallowing of a mouthful of liquid calls forth two distinct sounds, which may be differentiated by auscultation; the first sound is due to the muscles during the act of deglutition, the second sound, occurring about seven seconds later, originates from the propelling of the liquid into the stomach by the peristaltic activity of the lower portion of the esophagus. In esophageal stenosis some of the liquid accumulates above the seat of the stricture. If the individual makes a further attempt at deglutition—without swallowing anything, not even the secretion contained in the buccal cavity—some of the liquid detained by the stricture will be forced into the stomach, by which process the second sound will be again produced. This procedure may be repeated until all the liquid engaged in the esophagus has entered the stomach. This sign may point to stenosis of the esophagus before there is any other evidence of its presence. WESTERN.

Importance of Esophagoscopy and Tracheoscopy in Diagnosis—
E. SCHMIEGELOW, *Hospitalstidende*, Jan. 8, 1908.

The direct examination of esophagus and stomach by means of the esophagoscope proved of decided value in differentiation of cancer in the stomach or esophagus, spastic stricture, dilatation or diverticulum of the esophagus and foreign substances. In a case of tracheal stenosis due to pressure of a substernal goitre, the proper diagnosis could be made by tracheoscopy, which showed the necessity of removing the goitre.

TESSEN.

Early Exploratory Laparotomy in Gastric Diseases of Doubtful Nature—
W. L. RODMAN, *Jour. A. M. A.*, Jan. 18, 1908.

The appalling complications of hemorrhage, perforation, hour-glass contraction, disabling adhesions and malignant disease can only be prevented by earlier diagnosis of the conditions making them possible, and this cannot be done in the present state of our knowledge save by timely exploratory laparotomy. The danger of such an exploration, if done in time, is inconsequential and out of all proportion to the benefits derived therefrom.

WESTERN.

On a Special Form of Dilatation and Displacement of the Stomach—
T. S. SHORT, *British Med. Jour.*, Jan. 18, 1908.

The condition is associated with periodic attacks of very acute

pain, which is relieved if the patient can vomit, but is usually accompanied by an inability to vomit. In the intervals between the painful attacks discomfort, especially flatulence, occurs, the latter making its presence known not only by distention, but also by audible rumblings. There is also a want of proper assimilation, as evidenced by loss of flesh, debility, and great depression of spirits. The condition present is dilatation, with displacement downwards of the stomach. The principal condition likely to cause difficulty in diagnosis is ulcer, either of the stomach or duodenum. In gastric ulcer the pain is much more continuous, and although it may not be present all day, it is nearly always present several times each day. The pain follows the ingestion of food. Vomiting relieves the pain for a short time only, and not for several days, as may be the case in dilatation. The pain of ulcer is also not so acute, as a rule. In ulcer any tenderness present is generally localized; in dilatation it is spread all over the stomach area. The recumbent posture relieves the pain in dilatation much more readily than that of ulcer. If the ulcer be on the posterior surface, the supine posture may even make the pain worse. Hematemesis or melena of course points to ulcer, but the difficulty in diagnosis generally arises in cases in which no bleeding has occurred. In duodenal ulcer the pain generally comes on some time after the food intake, and is more persistent. The position of the pain over the duodenum and the occurrence of melena materially assist the diagnosis, but in the absence of these symptoms differential diagnosis between duodenal ulcer and gastric dilatation may be very difficult. Perhaps the most difficult condition in diagnosis is where an ulcer of long standing has been followed by fibrous growth in the scar and puckering with alteration in shape of the stomach. Should this occur near the pylorus, some obstruction may result and dilatation may follow, or a shape resembling more or less hour-glass contraction may be present. Exploration seems to be the only method of diagnosing with certainty such a condition.

WESTERN.

Early and Late Cases of Gastric Ulcer—W. F. CHENEY, *Jour. A. M. A.*, Feb. 8, 1908.

Diagnosis of gastric ulcer ought to be made before the classical syndrome has supervened. Many cases of chronic dyspepsia characterized for weeks or months by flatulence, waterbrash, burning and distress after food, where the epigastrium shows tenderness and the test meal shows hyperacidity, may be gastric ulcer, even when the feces show no occult blood. The diagnosis of this early stage of gastric ulcer must be inferred rather than demonstrated definitely. In the later stage, commonly described as gastric ulcer, the symptoms are really due to complications rather than to the original disease; to perigastric adhesions, to pyloric stenosis, to gastric dila-

tation and retention, to localized peritonitis, to the opening of a large blood vessel and to perforation of the stomach wall—complications the treatment of which belongs to the domain of the surgeon.

WESTERN.

Ulcus Ventriculi and Gastric Carcinoma—W. A. KATZ, *Deutsch. med. Wochenschr.*, 1908, No. 9.

The value of the presence or absence of hydrochloric acid in the stomach for the differential diagnosis of gastric ulcer and carcinoma is very limited. The author describes minutely a case of ulcer of the stomach, which had existed for a long time, and presented all the classical symptoms of cancer: Lack of free hydrochloric acid, cachexia, the presence of lactic acid, hemorrhages, etc.

MILL.

Case of Pseudo-Tumor of the Stomach—E. KONRIED, *Wiener klin. Wochenschr.*, 1908, No. 6.

Adhesive cholecystitis and pericholecystitis with swelling of the left lobe of the liver and adhesion to the pylorus presented a tumification which was taken for a gastric (pyloric) tumor. The stomach had assumed the hour-glass contraction.

MILL.

A New Test for the Differential Diagnosis of Appendicitis—I. C. CHASE, *Jour. A. M. A.*, Feb. 22, 1908.

The test is a rational method of applying abdominal palpation, resulting from the understanding of the cause of the pain produced in an inflamed appendix by abdominal compression. The "cecal distention test," as its author calls it, is thus executed: The patient is placed on a hard, low bed or table. The knees should be flexed and two pillows placed under the head and shoulders, giving a dorsal semi-recumbent position, rendering the abdomen flaccid. The examiner stands on the patient's left, facing the feet. The palmar surfaces of the fingers of the right hand are placed under the patient's left inguinal region and the fingers of the left hand used to reinforce the right. Deep pressure is then made backward, slowly drawing the fingers deeply and forcibly upward under the left costal arch. (This procedure is intended to compress the lower portion of the descending colon and force its gaseous contents into the transverse, and thence to the ascending colon.) The pressure being maintained with the fingers of the left hand, the right hand is then removed and placed over the upper portion of the descending colon, or better, over the transverse colon, and the fingers are quickly and forcibly depressed. A gaseous compression wave will travel across the transverse and down the ascending colon, and on arriving at the cecum will produce cecal distention, yielding a typical sharp pain in the right iliac fossa, if inflammation of the cecum or appendix

be present. The cecal distention test, if properly carried out, will demonstrate the presence or absence of active inflammation in the cecum or appendix by the typical colicky pains usually following in the right iliac region. If the pain during the attack has been reflected to the pelvis, gall-bladder, epigastric or umbilical region, the induced pain is also likely to radiate there. Diseases of the small intestines, stomach, gall-bladder, kidney, ureter, urinary bladder, ovary, tube, etc., may simulate typhlitis and appendicitis, causing tenderness and pain at McBurney's point, but they seem not to respond to this distention test, unless secondary inflammation has invaded the walls of the cecum or appendix. The test is of especial value when rigidity and tenderness on the right side make a direct palpation painful or impossible. In the diseases under consideration the stomach is usually empty and the transverse colon is readily located by percussion. When the colon is loaded with fecal matter, or assumes the V form, hanging downward toward the symphysis, or the small intestines are much distended, or the abdominal wall abnormally fat, or the rigidity and tenderness have extended to the left side, the application of the test will have to be varied. Often the method will then consist merely of a vigorous massage of the left colonic region in an antiperistaltic direction. WESTERN.

Value of the Differential Leucocyte Count in Acute Appendicitis—A. H. NOEHREN, *Annals of Surgery*, Feb., 1908.

Ninety per cent. of polynuclears is an indication for immediate operation. The lower the percentage of polynuclear cells the less severe is the condition. The degree of leucocytosis is too variable to be of practical value. CRONSON.

Primary Tumors of the Appendix—W. VASSMER, *Deutsche Zeitschr. f. Chirurgie*, Jan., 1908.

Of 65 cases of primary tumors of the appendix, 57 were carcinomatous, 3 endotheliomatous, 2 sarcomatous and 1 each myomatous, fibromyomatous and fibromyxomatous. The extreme ages in which these tumors were observed are eight and seventy-six years. When the tumor is situated in the middle of the appendix, or at the cecal end, the stenosis caused by it leads to retention and consequent inflammation. Such cases are usually operated upon for acute appendicitis. In most of the cases in which the tip is the seat of the tumor, appendicular symptoms are present. There are but few cases in which symptoms pointing to the appendix as the location of the trouble are not found. CRONSON.

Diagnosis of Tuberculous Cecal Tumor—J. C. HEMMETER, *Jour. A. M. A.*, Feb. 29, 1908.

Sixty-five per cent. of the cases of tuberculous cecal tumor occur

between the twentieth and fortieth year of life. In the beginning the affection is dormant; there may be constipation or constipation alternating with diarrhea. The severity of the affection is mostly not recognized until the symptoms of stenosis are in evidence. Then follow either localized or diffused pains of an acute, colicky character. Persistent constipation, nausea, vomiting are the rule, visible intestinal peristalsis is frequent. Intestinal hemorrhage, in the form of hemorrhagic admixtures in the stool, is quite frequent. Often there is an elevation of temperature, as the disease is a complication of pulmonary tuberculosis. Early and rapid development of the cecal stenosis is looked upon as carcinomatous, late and slow development as tuberculous, by Obrastzow. In the differential diagnosis there must be considered the possibility of cecal carcinoma, displaced kidney, fibrous appendicitis and accumulated scybala in the cecum. The main supports of the diagnosis of tubercular cecal tumor are: Infiltration of the walls of the cecum, which assumes the character of a tumor, and the presence of tubercle bacilli in the stools. The prognosis is grave under all conditions and depends upon the degree of stenosis, and the presence of disseminated intestinal or peritoneal tuberculosis, multiple abscess formation and amyloid degeneration of kidneys and intestines.

WESTERN.

Subphrenic Abscess as a Complication of Appendicitis—D. N. EISENDRATH, Jour. A. M. A., March 7, 1908.

If a patient who gives the history of some inflammatory condition in the right lower quadrant of the abdomen, or who has been operated on for appendicitis, has a continued rise of temperature, accompanied by other symptoms of septic intoxication, one should always make a diligent search for a subphrenic abscess. The downward displacement of the liver, the presence of an area of dulness with a convex upper border, continuous with the dulness of the liver, and the finding of fetid pus on exploratory puncture are very characteristic. If there is localized bulging or edema, the diagnosis is rendered quite easy. The principal condition to be differentiated is empyema. This is, at times, practically impossible. The history of a preceding pneumonia, followed by continued fever, and the local physical signs, are of great assistance in making a diagnosis of empyema. The upper level of the area of dulness is more apt to be horizontal in empyema instead of convex, as in a subphrenic abscess. In many cases differential diagnosis is impossible, except from the history and the character of the pus. If an empyema and subphrenic abscess coexist, differentiation is impossible. This is especially true of an encapsulated empyema. The X-ray is not sufficiently reliable to be useful as a means of diagnosis. The mortality in eighty-four cases which came to operation was 25 per cent. Considering the almost moribund condition in which many of the

patients are brought to the surgeon, 75 per cent. of recoveries is very encouraging. The percentage of recoveries will be even greater if the diagnosis is made at an earlier period. An early diagnosis is only possible if the attending physician will bear in mind the relative frequency with which subphrenic abscess occurs as a complication of appendicitis.

WESTERN.

Surgical Aspects of Subphrenic Abscess—H. L. BARNARD, *British Med. Jour.*, Feb. 22, 1908.

About one-third of the cases are due to perforating gastric and duodenal ulcers. In the majority of the cases due to gastric ulcer the perforation is on the anterior wall of the stomach and near the lesser curvature. About one-sixth of the cases are due to appendicitis, which may infect the subphrenic fossæ in four ways: 1. As a part of an acute general peritonitis. 2. By more or less slow and direct extension up the lumbar peritoneal fossæ from the pelvis. 3. Through the medium of the portal vein, as a part of pylephlebitis. 4. By lymphatic extension (*a*) up to the right retroperitoneal cellular tissue, or (*b*) up the lymphatics around the deep epigastric artery to the falciform ligament. Another sixth of the cases is due to hydatid and tropical abscesses of the liver. As a liver abscess enlarges it tends to thin out the liver substance and comes to the surface. The diagnosis can be made from the history. The great majority of intraperitoneal subphrenic abscesses begin with an acute perforation into the peritoneum, while extraperitoneal collections of pus below the diaphragm result from a spreading cellulitis and are therefore slower in their beginning. Pain is always the first symptom and is referred to the situation where the abscess forms. In perforative cases it is sudden, severe and stabbing. Vomiting is the next symptom in point of frequency and time, and is restricted to such instances which originate in a perforative peritonitis, especially in gastric and duodenal cases. There may be a period of obstinate constipation followed by nausea, hiccough and collapse. When the abscess is well localized, septic diarrhea always appears. In most cases there is profuse sweating, with weakness, dyspnea, and no appetite, while the tongue is dirty and dry and the face pale and muddy. Wasting is a constant sign. There is also profuse septic diarrhea. Fever is always present, though at times slight in amount. Chills sometimes occur and are a bad sign. An abdominal swelling is present in a great majority of the cases. This swelling does not descend on respiration. The part formed by adhesions is rigid, tender and dull on percussion; that formed by pus in contact with the abdominal wall is scarcely tender, bulges, fluctuates and is dull on percussion. Where gas is present a tympanitic area is formed high up in the epigastrium as a rule, and over the liver dulness, amphoric and coin

sounds can be obtained.. The tympanitic area travels around the chest as the patient is rolled over. In very few of the cases the liver dulness is lost. The thoracic signs are those of compression and inflammation of the base of the lung and pleura. There is displacement of the lung upwards and obliteration of the lower pleural angle. There is a dry pleurisy or a pleural effusion. There are signs of compression and consolidation of the lung. More or less bronchitis at the base is present. The most frequent association of signs is dulness, diminution or absence of breathing sounds, vocal resonance and tactile and vocal fremitus. In many cases the abscess causes a visible bulging of the thorax or definite swelling in the abdomen. The circumference of the thorax may be greater on the side of the abscess, and deep tenderness is sometimes present.

CRONSON.

Chronic Sigmoiditis—HEINRICH STERN, *Med. Rec.*, Feb. 29, 1908.

The author describes chronic sigmoiditis as a chronic inflammatory state of the sigmoid flexure, characterized by frequent exacerbations, lasting from several hours to several days, of the otherwise more or less subdued phenomena, viz., tenderness or pain in the lower left lateral and median anterior regions of the abdomen increasing upon pressure, moderate abdominal distention, with some resistance in the left iliac fossa, slight elevation of rectal temperature, obstipation, burning and aching sensation in buttocks and left thigh, various nervous phenomena, and frequently vesicular irritation in males and spasmodic leucorrhea in females. *Diagnosis.* Chronic sigmoiditis is readily recognized by its symptomatology, and particularly by the direct inspection of the affected area with the sigmoidoscope. In every case of recurrent pain in the lower left quadrant of the abdomen, increasing upon pressure, and in the presence of more or less acute aching in the buttocks and the left thigh, and habitual constipation, chronic sigmoiditis should be thought of. The history of the case, the rather sudden onset of the individual attack, and the obstipation facilitate the diagnosis of chronic sigmoiditis. Inspection reveals in nearly every instance some abdominal distention in the vicinity of the affected area, which is more pronounced in lean persons. The abdominal distention is best noticed when the eye of the examiner, who is standing at the head of the reclining patient, can travel down the latter's body. Percussion, which the author always performs with hammer and pleximeter, elicits the deadened sound to which Traube has already drawn attention, and the tympany, due to gaseous inflation, in the upper portion of the involved colonic segment. Palpation increases the sensitiveness of the affected area, and may hence serve as a means for its localization. Auscultation is of no assistance in determining

the seat of the pathological process. *Differential diagnosis.* The principal abnormal states from which chronic sigmoiditis must be distinguished are neoplasms, adhesions, prolapse of the left kidney, wandering spleen, and the diseases of the female internal organs of generation. The spleen in exceptional cases may descend into the pelvis and come into close contact with the sigmoid flexure. By a careful physical examination—even without sigmoidoscopic inspection—the various affections with which chronic sigmoiditis may be confounded can be readily excluded as a rule. Of course, when one or the other of these affections concurs with chronic sigmoiditis, a discriminating diagnosis is more difficult to arrive at. In all pertaining instances the employment of the sigmoidoscope is imperative. In the author's experience inflammatory processes occur fully as often in the sigmoid flexure as in the cecal and appendical regions.

WESTERN.

Acute Flexures or Angulations of the Sigmoid and Colon—J. P. TUTTLE,
N. Y. Med. Jour., March 14, 1908.

Author uses the term "acute" in the geometric sense as the obverse of obtuse, and not in the medical, for acute flexure or angulation is usually a chronic condition of slow origin. The term itself describes the condition, a sudden or sharp bend of the gut upon itself, such as in all hollow tubes narrows or obliterates the caliber according to its degree. *Symptoms.* There is always constipation or fecal stasis, distention and more or less tenderness over the cecum, often leading one to suspect chronic appendicitis. The other symptoms are local, constitutional, and include the whole category of reflex phenomena associated with obstructed bowel movements. In the congenital type there is always a history of colic, distended abdomen, constipation and indigestion. In the acquired angulations there is usually, in addition to the constipation and distended cecum, a history of dysentery, typhoid, acute colitis, sigmoiditis, pelvic peritonitis, or inflammation of the pelvic organs. Following these, sometimes at long intervals, increasing constipation or irregularity of bowel movement appear with crises of colic, with nausea and vomiting, followed or not by passages of mucus. The patients are constipated, muddy complexioned, have furred tongues, flatulence, bilious attacks, and pass more or less mucus with their stools. Examination always shows, if there is an acute flexure, some point in the sigmoid in which the instrument, instead of passing upward into the caliber of the gut, comes squarely against the wall; neither atmospheric pressure nor pneumatic inflation open the gut in front of the instrument, and twist it about as he will, we cannot get the tube past this point. Often there is abrasion or ulceration at the angulation. Another symptom may be incomplete evacuation.

WESTERN.

Diseases of the Pancreas—A. W. MAYO ROBSON, Berliner klin. Wochenschr., 1908, No. 7.

Author opposes the opinion that chronic pancreatitis or pancreatic catarrh can be but rarely recognized during life. The physical examination, the anamnesis, and the chemical and microscopical findings of the feces (particularly the presence of non-saponified neutral fat) give sufficient hints for the diagnosis. Affections of the pancreas, as a rule, are not followed by diabetes as long as a portion of the gland remains in a normal state. If sugar occurs in the urine it is an evidence of the grave character of the pancreatitis, as it speaks for an involvement of the islands of Langerhans. The composition of pancreatic calculi is very important. They do not occur frequently, and are probably the result of a catarrh of the ducts with retention of the secretion. The presence of calcium salts in the calculi makes them impenetrable for the X-rays. The ultimate outcome of pancreas-stone-disease is destruction of the gland, terminating in cirrhosis. Pancreatic cancer is more frequent. If the head of the pancreas becomes affected, the common bile-duct will be obliterated and in consequence of this icterus will occur. If it is the tail of the gland which is affected, an early diagnosis may prove of great importance.

MILL.

Alimentary Levulosuria in Diseases of the Liver—A. VON HALASZ, Wiener klin. Wochenschr., 1908, No. 2.

In exceptional instances only, 100 grams of levulose will call forth levulosuria when the liver is functioning normally. The positive result of the levulose test indicates the presence of a diffuse and serious disease of the liver, preëminently that of an advanced cirrhosis. Alimentary levulosuria will generally not supervene in icterus. Again, there will be no levulosuria in secondary metastatic tumors of the liver, in circumscribed affections causing limited parenchymatous involvement (echinococcus, diseases of the gall-bladder, hyperemia, etc.).

MILL.

Chronic Diseases of the Liver in Acquired Syphilis—W. EBSTEIN, Deutsches Archiv f. klin. Med., 1908, Nos. 3 and 4.

Chronic affections of the liver with an obscure etiology may be suspected to be of syphilitic origin. In six such cases the author applied antisyphilitic treatment with gratifying results.

MILL.

Should Cholecystitis and Cholelithiasis Be Any Longer Considered Medical Affections, and What Are the Usual Consequences of So Treating Them?—C. B. G. DE NANCREDE, Annals of Surgery, Feb., 1908.

The importance of certain biliary conditions and the impossibility of successfully treating them excepting with the knife is not sufficiently recognized. It is not necessary for a diagnosis of chole-

cystitis that there be jaundice, a painful tumor in the gall-bladder region, a chill and fever. The most common form of the disease is caused by germs of low virulence, but one is never sure that there may not be secondary infection with virulent organism causing infectious cholangitis or suppuration or gangrene of the gall-bladder. There are also possibilities of adhesions involving the stomach and intestine with permanently serious results. The absence of gall-stones at an operation does not prove that none have been passed nor that others may not form.

CRONSON.

Some Abdominal Tumors Simulating Malignant Disease and Their Treatment—A. W. M. ROBSON, *British Med. Jour.*, Feb. 22, 1908.

Inflammatory tumors of the abdomen which simulate malignancy are more common than is usually supposed. The pathology of the tumor is probably a chronic infiltrating colitis, possibly associated with pouches lodging fecal matter, or may be simply due to infections spreading through the intestinal walls. There are two forms, the adhesive colitis, in which the onset is usually acute, and the chronic infiltrating colitis or proctitis, in which the onset is insidious and the progress slow. Both are characterized by progressive constipation and a great loss of flesh and strength. The fact that cancer is complicated with inflammation makes a positive diagnosis at times impossible. Chronic tuberculous disease of the cecum may closely simulate cancer. The liver may be the seat of simple tumors suspected to be malignant, and if they are associated with rapid loss of flesh and more or less jaundice the diagnosis of cancer is very apt to be made. Exploratory laparotomy should be performed if the diagnosis is doubtful and the patient is at all in a condition to bear operation.

CRONSON.

Pathology of Retrograde Incarceration—A. NEUMANN, *Deutsche Zeitschr. f. Chirurgie*, Jan., 1908.

With a strangulated viscus in the abdomen, and a comparatively normal viscus in a hernial sac, we are dealing with a retrograde incarceration or strangulation, according to Maydl. Fallopian tubes, appendix, Meckel's diverticulum or a portion of the intestines may be involved. For reason of an extreme lordotic position of the lumbar vertebræ, the mesentery approaches the internal hernial ring, and permits of the exit of a loop of gut whose mesentery would be too short to encompass the distance under ordinary circumstances. Thus, if one portion of the mesentery be particularly short, the consequent erection of the spine would reduce a portion of the loop and carry it back into the abdominal cavity. Even then the mesentery may be too tense; its vessels may become closed by reason of the tension and the blood supply of the abdominal loop may become

insufficient. Such hernias should be termed retroactive rather than retrograde.
CRONSON.

Contribution to Our Knowledge of Hirschsprung Disease—KÖPPE,
Monatsschr. f. Kinderheilk., 1908, p. 496.

A case in which clinically a stricture was present in the upper part of the rectum. This had disappeared when the case came to autopsy. The spastic character of the stricture is thus proved.

MILL.

Diagnosis and Treatment of Benign Tumors of the Rectum—H. A. BRAV,
N. Y. Med. Jour., March 7, 1908.

Benign tumors of the rectum comprise growths which, as a rule, have a pedunculated attachment and a pendulous extremity. They occur quite frequently in either sex and at any age, but are more common in women and children. They vary in size, shape and form, may be single or multiple, and are usually attached by a single stem, but they may have more attachments. These neoplasms are also known as polyps on account of the fact that they are attached to the rectal wall by a pedicle or stalk. Of all varieties the adenoma is the most frequent. It is very common in childhood, very rare in adult life. They are soft when composed of the constituents of the mucous membrane, while those which are composed of elements of mucous membrane and submucous connective tissue are generally hard, and are spoken of clinically as a fibroadenoma. They are generally the size of a large cherry. These growths have the color of the mucous membrane of the rectum, but when they protrude at the anus they have a purple-red appearance. They are generally attached to the posterior wall of the rectum and at a point within reach of the finger. A small adenoma may exist for a long time without giving rise to symptoms. As a rule, however, hemorrhage occurs from the abraded surface of the growth, produced by the passage of hard scybalous masses over it. The passage of blood from the rectum in a child, usually under ten years of age, with or without pain on defecation, with or without straining, generally means the presence of polypus. A digital examination should be made in order to locate the growth. This is best accomplished by sweeping the finger around the entire circumference of the anal canal as far as it can be reached. Growths higher up in the rectum can only be located under an anesthetic. Owing to the fact that polypi may sometimes protrude at stool, they are frequently mistaken for hemorrhoids and treated as such. The next most common benign tumor in the rectum is the fibroma, or fibrous polypus. It consists of fibrous tissue and has a short, tough pedicle. It is usually situated within the first two inches of the rectum and varies in size from that of a hazelnut to a walnut. These growths are

mostly found in adults and are usually multiple in character. They may protrude during defecation and be mistaken for internal piles. A fibroma can readily be diagnosed by the finger, which will detect a firm, hard growth. A small, fibrous polypus may exist for some time without any untoward effect; it will, however, soon bring on spasms of the sphincter and levatores ani muscles, which ultimately become hypertrophied and indurated. One of the rarest of all benign tumors in the rectum is the villous tumor. This neoplasm may reach the size of an orange and has a bandlike, short, fleshy pedicle. Its surface is generally lobulated, giving it a cauliflower appearance. It is found in adults only or in old individuals, who, as a rule, complain of diarrhea on account of the watery discharge from the bowel, which makes them go to stool frequently. These patients also complain of dull, aching pains in the rectum radiating to the sacrum. They generally lose flesh and strength and have a cachectic appearance. The only procedure necessary to establish a correct diagnosis is a digital exploration of the rectum. Careful manipulation of the finger will detect a growth attached to some part of the bowel by a broad pedicle. In the majority of cases the tumor will be found at the posterior wall of the rectum.

WESTERN.

NERVOUS SYSTEM

Gordon's Paradoxical Flexor Reflex and Its Diagnostic Significance—G. E. PRICE, *Jour. A. M. A.*, Jan. 11, 1908.

Gordon's "paradoxical flexor reflex" consists in the extension of the great toe on pressure or irritation of the deep flexor muscles of the calf of the leg. The technic of the method is as follows: The patient may either lie on his back or sit on a chair with the feet (not the legs) on a stool. The feet must be slightly rotated externally; in this position complete relaxation of the muscles of the leg is obtained. The examiner must always place himself to the outer side of the leg; the thenar and hypothenar muscles of his right hand must be placed on the inner surface of the tibia of the patient and the fingers press deeply on the middle or the lower portion of the calf muscles. Sometimes pressure must be combined with lateral movements of the superficial muscles. If the reflex is present, extension of the great toe, or of all the toes, will be noticed. Its clinical value consists in indicating motor tract disturbance when other positive signs may be wanting. Increased reflexes and muscular rigidity, the symptoms most constant in motor tract disturbance, are not infrequently found in functional disorders, and ankle-clonus, Babinski's and Oppenheim's signs may be absent with a true organic, motor tract lesion. Besides its importance as a sign of disturbance of the upper motor segment, the Gordon reflex is of value as a deli-

cate sign, being commonly found early in the history of the lesion or when the involvement is slight. GOODHART.

A Peculiar Phenomenon of the Pupil—E. REDLICH, *Deutsche med. Wochenschr.*, 1908, No. 8.

Author observed in some cases of hysteria and epilepsy, during intense muscle activity, a remarkable dilatation of the pupil with a very slight or entirely missing light-reaction, while the convergence-reaction was maintained. This phenomenon is probably caused by irritation of the sympathetic nerve, and thus many cases of immobility of the pupil in hysteria and epilepsy may be explained. Some cases of spontaneous dilatation of the pupil may also be the result of a similar mechanism. MILL.

Trigeminus-Neuralgia Caused by Non-Eruption of Tooth—TREYMAN, *Deutsche med. Wochenschr.*, 1908, No. 9.

Very interesting case in which the cause of agonizing pains remained obscure until X-ray examination revealed a non-erupted tooth with caries interna. The roots of this tooth extended to the infraorbital nerve and the sphenopalatine ganglion. MILL.

Neurology of the Tongue—J. FLESCH, *Münchener med. Wochenschr.*, 1908, No. 3.

An attempt to locate the seat of tongue paralyses by exact analysis of the lingual movements. The author differentiates between glossophlegia externa and interna according to the involvement of external muscles (genio-, hyo-, stylo- glossi) or deeper muscles (transversus, longitudinalis and terminations of accessory muscles), and glossoplegia totalis. Functional examination of the lingual movements occasioned by the various groups of muscles permits of a differential diagnosis between nuclear and supranuclear paralyses, and also occasionally of the recognition of centrally communicated isolated palsies of the genioglossus or styloglossus. GOODHART.

Pseudoperiostitis Angioneurotica—M. HERZ, *Zentralblatt f. innere Med.*, March 21, 1908.

Author applies the term pseudoperiostitis angioneurotica to an affection the symptoms of which are those of periostitis, but differing from the latter on account of its transient character and its tendency to recurrences. The affection consists in a tough-doughy infiltration of the immediate vicinity of a bone, calling forth pain and which is sensitive to pressure: The appearance of the affection always coincides with an exacerbation of a cardiac disease. The affection has not heretofore been recognized on account of having been mistaken for other diseases. Four cases are cited, in each of which there occurred in various parts of the thoracic bones temporary, painful and pressure-sensitive infiltrations of the periosteum

and its immediate neighborhood in the wake of nervous cardiac paroxysms.

GOODHART.

Polioencephalitis Superior—W. A. HOLDEN and J. COLLINS, *Jour. A. M. A.*, Feb. 15, 1908.

The typical clinical manifestations of acute polioencephalitis superior fall into three distinct groups: those referrible to the eyes, the mental disturbances, and the ataxia of gait and speech. The symptoms usually develop slowly, preceded by vertigo, headache, diplopia and sleeplessness, although they may come most abruptly, the eye-muscle paralysis being very sudden. The ophthalmoplegia, usually spoken of as exterior because it affects only the extrinsic muscles of the eye, may, however, exceptionally be manifest by paralysis of the ciliary muscle and the sphincter of the iris. In the severe cases ophthalmoscopic examination reveals an optic neuritis, the paralysis of the external eye muscles, the frequent partial ptosis, and the peculiar whimpering, pathetic facial expression which the patient develops, constituting a very typical clinical picture. The mental symptoms are usually those of an active delirium, resembling that of alcoholism, and likewise the ataxia of speech and of gait is not unlike that of the acute inebriation. Occasionally the mental symptoms are quite like those of Korsakow's syndrome, with disorientation, spurious reminiscence, active fabrication, particularly following suggestion, and easily provoked mental confusion. The disease terminates in recovery much more frequently than is generally taught.

GOODHART.

Acute Bulbar Paralysis with an Unusual Symptom—A. GORDON, *Med. Record*, Feb. 29, 1908.

The unusual symptom in a case of acute bulbar paralysis consisted in loss of speech, the loss of power to pronounce letters. The patient could, however, emit sounds resembling words to some extent. During the first attack there was a sudden loss of consciousness, and the face became drawn to the right; the speech was totally lost. There was no involvement of the other cranial nerves. In the second attack, the twelfth, tenth, ninth, seventh and motor part of the fifth became involved, but there was no loss of consciousness.

GOODHART.

Infantile Eclampsy and Its Later Effects—J. POTPESCHNIGG, *Archiv für Kinderheilk.*, 1908, No. 6.

Spasmophilia tends to permanent injury of the organism. Spasmophilic children who do not succumb to laryngospasm acquire epilepsy or its equivalents. But few such children regain perfect health and live to an old age. The disease has a functional character and may be influenced by disturbances of thyroid function and nutrition.

WESTERN.

Infantile Paralysis—G. RANKIN, *The Practitioner*, Feb., 1908.

In the diagnosis of infantile paralysis it is a common mistake to ascribe the illness, in its initial phases, to chill, dentition, or the onset of one of the specific fevers. Later on such an error is rectified by the discovery of a flaccid paralysis affecting one or more limbs; and, at a still later stage, corroboration is afforded by muscular atrophy, loss of reflexes, and altered electrical reactions. An arrest in development of the affected limb, causing it to be, in all its structures, smaller than its neighbor, and also lividity and frigidity of its surface, are minor points of confirmatory significance. Further differential characteristics are to be sought for in the absence of permanent sensory disturbances and of bladder or rectal troubles; also in the liability to progressive contractions in the affected limbs. Infantile paralysis may be confounded with acute transverse myelitis, cortical disease of the brain, peripheral neuritis, or the pseudo-paresis of rickets; but difficulties in diagnosis are, in the large majority of instances, few, and, with reasonable care, mistakes are easily avoided.

WESTERN.

Diagnosis of General Paralysis—F. W. MOTT, *The Practitioner*, Jan., 1908.

An exhaustive article not lending itself readily to abstraction. The author believes, with others, that, practically speaking, only those suffer from general paralysis who have acquired or inherited syphilis. Hence the necessity to discuss the question of previous syphilitic infection in making a diagnosis. If it cannot be proved by the history, or by residua on the body, that the patient has syphilis, it must not be assumed that syphilis can be excluded. Author then discusses the relation of syphilis to this disease. In making a diagnosis, the absolute exclusion of syphilis, either acquired or hereditary, may enable us to practically exclude the possibility of the case being general paralysis or tabes, but cases will arise, very occasionally, in which we believe we can exclude syphilis with almost certainty. In a few cases one is either able to prove the possibility of syphilitic infection or one has doubts whether syphilis could be excluded. A typical case of general paralysis is easy to recognize; it is in the early prodromal stages of the disease, in the atypical cases, the juvenile cases, cases complicated with other diseases, by alcoholism, lead, arterio-sclerosis, and syphilitic brain disease, when difficulties in diagnosis arise; it is especially difficult to decide whether a case is one of neurasthenia or the prodromal stage of general paralysis; for it is the neurasthenic, the subject of syphilis, who is especially liable to develop general paralysis. The great majority of cases commence in the fourth and fifth decades of life; it is much commoner in males than in females; there are different forms of the disease. The term paralysis is incorrect, for it is a paresis; and a gross paralytic condition points away from general paralysis rather

than to it. In the prodromal stage of general paralysis the only noteworthy symptoms are those which the nearest relatives or the partner in profession or business may have noticed in the conduct of the patient. His moral and esthetic feelings may have changed; his character may have become irritable, morose, depressed, and changeable in mood; perhaps apprehensive and filled with morbid fears and dread; or he has become neglectful of his home, and wrapped up in some scheme by which he will satisfy newly acquired ambitious designs; or there may be marked exuberance of spirits, and a desire to spend money; or a hyperesthesia sexualis, with an insufficient power to satisfy his impulses, will lead to strained marital relations, immorality, and promiscuous intercourse, exhibitism, and even sexual perversion. Sometimes the first indication may be attacks of giddiness, resembling migraine, or convulsive seizures, with or without loss of consciousness, or a temporary loss of speech, and apparently the patient subsequently presents no other signs of the serious brain affection of which these attacks may be the herald. In the prodromal stage of general paralysis the examination of the pupils may afford the most valuable objective sign. Inequality of the pupils may indicate organic brain disease, and the existence of a sluggish reaction to light, or the Argyll-Robertson pupil, inactive to light while active to accommodation, would be certain evidence pointing to general paralysis. Still the pupils may not show any of these signs. Some observers have recently shown the importance of the irregular pupil in the diagnosis of early cases of tabes and general paralysis; this irregularity may precede all other signs, and points to general paralysis, tabes or syphilis. Lumbar puncture is a most reliable means of determining whether or no a patient is suffering from functional or organic disease of the nervous system, for, if the cerebro-spinal fluid withdrawn by this operation is centrifuged, and a deposit found, which, on microscopical examination, consists of lymphocytes and plasma cells, one can certainly exclude neurasthenia, hysteria, and other functional neuroses and psychoses. The existence of these cellular elements points to chronic organic disease of the central nervous system, notably tabes, general paralysis, syphilis, and tubercular meningitis. The prognosis is bad, but occasionally remissions occur; and the fact that cures have been claimed by various methods of treatment may be due to the temporary quiescence of the disease, which may frequently occur when a patient is placed in an asylum away from the exciting influences of drink, sexual excesses, and other forms of mental excitement.

GOODHART.

Spinal Cord Lesions and General Paralysis—N. KINICHI, *Archiv f. Psychiatrie u. Nervenkrankh.*, Vol. XL, Part 3.

In an exhaustive study of cord lesions in paresis in one instance

only out of forty-three was found isolated degeneration of the pyramidal tracts. In six cords there was isolated degeneration of the dorsal columns only; in one the cord was found entirely normal. In twenty-three cases pupillary reaction failed completely. In twenty-six instances the patellar reflex was increased and absent in thirteen.

GOODHART.

Sleeping-sickness and General Paralysis—W. SPIELMEYER, *Münchener med. Wochenschr.*, Vol. LIV, No. 22.

Marked analogy is found between the pathological findings in what is called "sleeping-sickness" and general progressive paralysis. This is explained by the relationship established by comparative researches on trypanosomes and spirochetæ affections. Schaudinn has demonstrated that transition forms occur between these, showing a relationship of the spirochetæ and the trypanosomes.

GOODHART.

Postdelirious Alcoholic Stupor (Alcoholic Cerebral Edema, "Wet Brain")—C. K. STILLMAN, *N. Y. Med. Jour.*, Jan. 25, 1908.

There is no set rule as to the time of onset of stupor in the course of delirium tremens. The first symptom attracting attention is perhaps the distinct alteration in facial expression. The marked restlessness and noisy activity that characterized the delirium tremens have departed, and the heightened color and exaggerated play of expression have given place to a gray pallor and almost cadaveric immobility of countenance. At this time the pupils are equally contracted and there is a moderate degree of stiff neck present. Soon after, the patient lies flat upon the back with legs extended, head thrown somewhat back and unobserving glance directed toward the ceiling, toward which the hands reach in a rather characteristic manner, suggestive of rope climbing. They are seldom still for more than a few seconds at the time, and exhibit the weak, wide tremor of cerebral irritation. Generally the stuporous patients say nothing that is audible. When they talk, as some of the milder cases do, the labials are absent, and they appear to suffer from inability to initiate muscular movements of the lips. When irritated or hurt, the accompanying facial contortion involves the least mobility of expression consistent with the recognition of pain. In the majority of cases the eyelids are closed, while flies gather in numbers unheeded about the eyes, nostrils, and corners of the mouth. The pupils in the early stages are often reduced to pin-point size and later dilate, remaining so to the end. Muscular rigidity, rarely extreme, and hyperesthesia are two early symptoms. Stiff neck is very persistent. The pulse is small, frequent, feeble intermittent, of low tension, and very variable in quality and rate from hour to hour and day to day. The respiration is not much disturbed. The tem-

perature is low, 99 to 101 degrees F., and it drops to subnormal not rarely. The stupor is a quiet one, except for the muttering movements of the mouth, and the peculiar and continual activity of the hands. The coma is of variable quantity; certain cases never become comatose until just before death. A second class, passively delirious or comatose, will comprehend if directly addressed, or even obey directions, but relapse with closed eyes into incoherent muttering, if left alone. A third class remains oblivious to all external stimuli.

GOODHART.

Psychasthenia: Its Semeiology and Nosologic Status among Mental Disorders—J. W. COURTNEY, *Jour. A. M. A.*, Feb. 29, 1908.

In this article, which completely covers the subject under consideration, psychasthenia is differentiated from other affections as follows: from hysteria, it is distinguished pathologically by the fact that the disturbance of consciousness which marks it is general. Throughout the psychasthenic's whole field of consciousness there is evidence of activity, however feeble and fruitless it may be, while in that of the hysteric all activity is carried on within a narrow corner. The psychasthenic never displays a completeness in any of his pathologic phenomena. He has impulses, but does not carry them out; he has hallucinations, but they do not seem real to him and he is never deceived by them; he has obsessing ideas, but knows they are false, and is the first to doubt them; he has periods of agitation and periods of immobility, but never gets as far as a real "attack" or a somnambulism. His crises are never followed by amnesia; he feels at times a doubling of his personality, but always knows the thoughts of the second ego. This characteristic incompleteness is also found in the normal phenomena which he retains. He does not perceive or remember well; his attention and execution are defective, but he is never completely anesthetic, amnesic or paralytic. The hysteric exhibits important differences in every direction. The phenomena he retains are complete in every way and attain reality. He entertains no doubts concerning his personality or the outside world; on the contrary, the phenomena preserved are often overdeveloped, and the subject executes completely his impulsive ideas, so completely and so easily, indeed, that a suggested idea immediately transforms itself into an act, a mental image into a complete hallucination, with belief in its reality. The hysteric carries to an extreme the negative phenomena, and his mental operations betray a real gap. The distinction between psychasthenia and neurasthenia is not so striking. We may maintain that in psychasthenics the rachialgias, the chronic feeling of fatigue, the circulatory disturbances, the dyspepsias, the paresthesias, the insomnias, etc., are as common as in neurasthenics, but the psychasthenic is mostly too preoccupied with his obsessions, mental manias, tics, etc., to give heed to them. In the psychasthenic

the intellectual manifestations preponderate. Many of the symptoms of psychasthenia also occur in the early stages of several different forms of psychoses. In such cases, however, the purely psychasthenic state does not persist as such for any length of time, and the psychosis, of which it is but the forerunner, will soon manifest itself. Psychasthenia, not the symptom but the stable disease entity, is a forme fruste of intellectual petit mal. GOODHART.

URINARY ORGANS—MALE GENITALIA

The Secretion of Hydrochloric Acid in Nephritis—E. AXISA, Zentralblatt f. innere Medizin, Feb. 29, 1908.

During the period in which uremic symptoms manifest themselves the excretion of hydrochloric acid is markedly diminished; as soon as the uremic phenomena disappear, the hydrochloric acid excretion becomes augmented and may almost be excreted in normal amounts. Another marked decrease in its excretion takes place when uremic manifestations ensue again. It exists, therefore, a parallelism between gastric and renal function, inasmuch as, according to the intensity of the uremic symptoms, we encounter more or less pronounced subacidity, and as we find normal or almost normal HCl amounts at the moment when there is no disturbance of renal function. Subacidity appears to be a primary phenomenon supervening when uremic symptoms indicate a disturbance of renal function. If subacidity is not characteristic of nephritis, as Senator opines, then it is undoubtedly characteristic of uremia. WESTERN.

New Contributions to the Etiology of Orthotic Albuminuria in Childhood—L. JEHL, Münchener med. Wochenschr., 1908, No. 1.

Author shows by the study of seven cases that changes in the position of the lumbar spine may cause albuminuria. If the spine is lordotic, albumin is found, and this disappears from the urine when the lordosis has been corrected. MILL.

Colibacilluria—H. B. SHAW, Clinical Journal, Feb. 12, 1908.

Any injury to the rectum admits the colon bacillus to the submucous tissues. The first sign of colon bacillus invasion of the urinary tract is generally a whitish urinary deposit in which pathogenic microorganisms may be distinguished by the microscope. The odor of the urine is very offensive, frequently apparently ammoniacal. The reaction, however, remains acid. Author divides the symptoms into such in which fever of apparently unexplained origin plays the main rôle, and into such which bear a gastrointestinal and cerebral character. Infection of the urinary tract by the colon bacillus is capable of producing or being associated with the similitudes of malaria, dysentery or mucous colitis, recurrent cystitis of unknown

cause, enuresis, pyuria of unexplainable cause, "gout" or "goutiness" or "rheumatism," general tuberculosis or genital tuberculosis, dyspepsia, acute suppression of urine.

ZIMMER.

Acute Bacterium Coli Infection of the Bladder—C. G. CUMSTON, Am. Jour. of Urology, March, 1908.

Bacterium coli cystitis is a not uncommon occurrence, but it is readily overlooked or mistaken for other affections. The onset of this affection is frequently sudden and violent, the temperature may rapidly rise to 103 or 104 degrees F., while the pulse may increase to about 100 a minute. The patient may have a rigor and at the same time excruciating pain in the region of the bladder, more particularly about the neck. The pain may be at its height when the bladder empties itself, which it does very frequently, perhaps even as often as every twenty minutes. The frequency of micturition is one of the most distressing symptoms. Besides the pain, tenderness and rigidity in the anterior aspect of the abdomen, it will be found on rectal examination that the prostatic urethra is tender, while the prostatic lobes will be found swollen and very sensitive to pressure. In colon bacillus cystitis the vesiculæ seminales may be swollen and tender, and the inflammation may spread along the spermatic cord, so that the testicles and epididymis become tender. Occasionally a severe orchitis may supervene. The considerable tenderness in the lower part of the abdomen, with muscular rigidity, clearly indicates the presence of some tender organ, which may or may not be the bladder. Such symptoms may correspond with an attack of peritonitis from appendicitis, when the appendix has a pelvic situation, and in a very marked and acute case of colon bacillus cystitis, the patient will suffer considerably from abdominal distention and flatulence. The urine exhibits a fishlike odor, and it may deposit pus or mucus. Pus occurs sometimes in microscopical amounts only. With the naked eye minute flakes of lymph and shreds may be often discovered. They consist of leucocytes, columnar epithelium and colon bacilli, coming from the prostatic ducts. Usually vast quantities of small, motile, oval-ended colon bacilli can be seen throughout the microscopic field in acute cases. It is of great importance to diagnose this dangerous type of genito-urinary infection, because, unless it is properly treated, severe complications, of which the continuation of the infection along the ureters to the renal pelvis, may arise sooner or later.

WESTERN.

Intraperitoneal Rupture of the Bladder—NORDMANN, Deutsche med. Wochenschr., 1908, No. 4.

The first and most important symptom of intraperitoneal rupture of the bladder, besides ineffective micturition, is, like in any other lesion of the abdominal organs, the reflectory tension of the

abdominal wall. Whenever intraperitoneal rupture of the bladder is suspected, the case should be immediately turned over to the surgeon. MILL.

Diagnosis of Functionally Active Ureters Terminating in an Abnormal Locality—A. WESTHOFF, *Zentralblatt f. Gynaekologie*, Feb. 29, 1908.

But twenty-five cases of functionally active ureters emptying in an abnormal locality have been recorded. A pathognomonic symptom is continual dribbling of urine accompanied by otherwise normal bladder function. Most of these cases are mistaken for enuresis. The case reported is that of a child seven years old, who was constantly wet, although the bladder was evacuated regularly. By means of a magnifying glass cribriform openings from which the urine escaped were found below the urethra. The sieve-like membrane was cut away and a sound passed as far as the base of the bladder. Cystoscopic examination revealed normal-looking ureteral openings, but no urine came from the mouth of the left ureter. The child was cured by vesical implantation of the left ureter through a median laparotomy. CRONSON.

FEMALE ORGANS OF GENERATION—PREGNANCY—PARTURITION—INFANTS

The Importance of an Ocular Examination in Pregnant Women Manifesting Constitutional Signs of Toxemia—W. C. POSEY and J. C. HIRST, *Jour. A. M. A.*, March 14, 1908.

The urea test as an independent method for the recognition of renal disease in the pregnant woman is often misleading. The urea test is of value only when taken into consideration with the presence or absence of albumin, as when albumin is present the urea percentage probably will be below normal. In doubtful cases presenting vague general symptoms with negative results from urinary examinations, any corroborative evidence of actual toxemia is of the greatest value. It is in such cases that an ophthalmoscopic examination is particularly indicated. Obstetricians should appreciate two facts: first, that changes in the eye-grounds which have been occasioned by renal disease, and are almost certainly diagnostic of renal disease, may precede the presence of albumin in the urine; and second, that the ophthalmoscope may give evidence of disease of organs other than the kidneys which has been excited by the toxemia of pregnancy. The renal condition arising in pregnancy is an acute affection, but chronic nephritis may have existed in many cases prior to pregnancy. Examination of the fundus under these conditions reveals in most instances disease of retinal vessels. The usual ophthalmoscopic picture of the renal disease of pregnancy, retinitis albuminuria gravidarum, is that of other varieties of Bright's dis-

ease, consisting of well-marked inflammation of the optic nerve and retina with extravasations and hemorrhages. The ocular symptoms of the toxemia of pregnancy other than those occasioned by nephritis have not as yet been grouped into particular types. ZIMMER.

Puerperal Pyelonephritis—C. JEANNIN, *Progrès Médicale*, Jan. 25, 1908.

Pyelonephritis from pressure of the gravid uterus on the ureter and retention of the urine in the pelvis of the kidney is not uncommon. It is an infection due to bacteria which arrive through the blood, and the bacterium coli holds the first rank in its production. It is important to differentiate from puerperal infection. The date of the appearance of the trouble may be from a few hours to the third day after labor or later still. The beginning may be sudden with a chill and high fever, or the fever may be lacking and there may have been a former attack some months previously. In pyelonephritis there is habitual constipation, rapidly rising temperature of a remittent type, pulse and respiration rising only during fever. There are no genital symptoms at all. CRONSON.

Puerperal Psoitis—P. E. LAUNOIS, *Jour. de Méd. de Paris*, Jan. 20, 1908.

There is an unusual form of puerperal infection, a puerperal psoitis. The psoas muscles are enclosed in an aponeurosis which separates them from the surrounding structures and confines the pus when it has formed. The symptoms of the affection are characteristic: pain, loss of power, attitude of the limb (flexed on the pelvis but not adducted or abducted), swelling in the iliac fossa, with the classical picture of septicemia. Coxalgia, acute arthritis of the hip-joint, or sacroiliac articulation, perinephritic and periuterine inflammations must be excluded. CRONSON.

Fulminating Pelvic-Abdominal Edema Simulating Ruptured Tubal Pregnancy—W. A. BRIGGS, *Jour. A. M. A.*, Feb. 15, 1908.

Fulminating pelvic edema may very closely simulate a ruptured tubal pregnancy. Absence of subjective and objective signs of pregnancy, of irregular uterine hemorrhage, of decidua in the flow in cases of shock with severe pelvic pain, would suggest the possibility of fulminating pelvic edema. A hemoglobin test might assist in the differential diagnosis. ZIMMER.

The Diagnostic Value of Palpable Cubital Glands in Nurslings—REICHE, *Monatsschr. f. Kinderheilk.*, 1908, p. 504.

Author examined 275 nurslings and found that palpable cubital glands are a frequent occurrence in congenital syphilis. They are, however, also met with in every case of inflammation in adjacent tissues. Their diagnostic value for the presence of congenital syphilis is therefore very limited. A palpable cubital gland is proof of its pathological character. MILL.

Bibliography

MEDICAL DIAGNOSIS. *A Manual for Students and Practitioners.* By CHARLES LYMAN GREENE, M.D., Professor of the Theory and Practice of Medicine in the University of Minnesota; Attending Physician, St. Luke's Hospital, the City Hospital and the St. Paul Free Dispensary; Member of the Association of American Physicians, the American Medical Association, American Association for the Advancement of Science; Author of "The Examination for Life Insurance and its Associated Clinical Methods," etc., etc. Second Edition, Revised. With 7 colored plates and 241 illustrations. Philadelphia, P. Blakiston's Son & Co. 1907.

Students of medicine and general practitioners of the art are easily led astray by text-books on general subjects, whose authors have a covert tendency toward specialism. In such books, as a rule, the attention given to subjects dear to the author's heart far exceeds their import; while subjects of greater value and importance, but which unfortunately do not appeal to his taste, are dealt with summarily.

Exaggeration and one-sidedness are out of place in any medical treatise, and the absence of these derogatory qualifications renders even a casual perusal of Greene's "Medical Diagnosis" refreshing and gratifying. In this work, no topic has received undue or unmerited attention at the expense of another; no over-statements on the one side are counter-balanced by under-valuations on the other. The author, a leading practitioner of the Northwest, has preserved the sense of proportion throughout, thus making his book exceptionally valuable and trustworthy.

Sections of this book, especially those treating on "Outward Signs of Disease," or "Malingering," should be read by the busy practitioner every now and then, as he will thereby be kept on the alert.

Typographically and mechanically the book represents the best of the bookmaker's art.

H. S.

BRADYCARDIA AND TACHYCARDIA. *Part II of Clinical Treatises on the Symptomatology and Diagnosis of Disorders of Respiration and Circulation.* By Prof. EDMUND VON NEUSSER. Authorized English Translation, by ANDREW MACFARLANE, M.D., Professor of Medical Jurisprudence and Physical Diagnosis, Albany Medical College; Attending Physician to St. Peter's and Child's Hospital and Albany Hospital for Incurables. New York, E. B. Treat & Co. 1908.

The commendations which we have given to Part I of these Clinical Treatises—"Dyspnoea and Cyanosis"—may be applied in equal measure to the little monograph before us entitled "Brady-

cardia and Tachycardia," and forming Part II of Neusser's special clinical treatises. It is quite a complete exposé, which will prove of decided value to the physician wishing to inform himself concerning the phenomena: infrequent and frequent pulse. An appendix of 50 pages, containing, among other matter, abstracts and bibliography concerning Adams-Stokes disease and tachycardia, enhances the usefulness of the little volume. The translation could not be improved upon.

H. S.

THE BLUES (*Splanchnic Neurasthenia*). *Causes and Cure*. By ALBERT ABRAMS, A.M., M.D. (Heidelberg), F.R.M.S. Consulting Physician, Denver National Hospital for Consumptives, the Mount Zion and the French Hospitals, San Francisco; President of the Emanuel Sisterhood Polyclinic; Formerly Professor of Pathology and Director of the Medical Clinic, Cooper Medical College, San Francisco. Illustrated. Third Edition, Revised and Enlarged. New York, E. B. Treat & Co. 1908.

On the occasion of the publication of the third edition of this book, we tender our congratulations to the author for its well-deserved success, and we wish to reiterate what we have said elsewhere, when reviewing the first edition, namely, that it is a bugle call heralding the passing of the stomach specialist. Of course, many of the author's premises, suppositions and conclusions still await definite confirmation, and the syndrome of splanchnic neurasthenia—viewed from the diagnostician's standpoint—is rather vague and arbitrary, for it fits equally well to a variety of *tangible* intra-abdominal disturbances.

However, in spite of a certain indefiniteness, Abrams' work appears to be a decided step forward in the right direction, and it ought to occupy a handy place on the desk of every earnest thinker in medicine.

H. S.

THE INTERNATIONAL MEDICAL ANNUAL. *A Year Book of Treatment and Practitioner's Index*. New York, E. B. Treat & Co. 1908.

This well-edited year book, which makes its bow for the twenty-sixth time, contains, besides an abundance of therapeutic material, numerous diagnostic and prognostic hints. A number of special articles like "The value of fecal examination in chronic disease," "Epidemic cerebrospinal meningitis," "Diagnosis of tuberculosis," "Pulmonary tuberculosis," and others, are either entirely or in part devoted to diagnosis and prognosis.

This work is a trustworthy general source of well-digested modern medical information.

T. F. R.

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A Case of Pyloric Cancer. John B. Deaver

(See page 244)

THE ARCHIVES OF DIAGNOSIS

A QUARTERLY JOURNAL DEVOTED TO THE STUDY
AND THE PROGRESS OF DIAGNOSIS AND PROGNOSIS

Vol. I

JULY, 1908

No. 3

Special Articles

RELATIVE VALUE OF THE RÖNTGEN RAYS IN THE DIAGNOSIS OF PULMONARY TUBERCULOSIS

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It is hardly necessary to urge upon the modern physician the imperative need for the earliest possible diagnosis of pulmonary tuberculosis. The profession now realize, and the general public are being educated to feel, that with incipient cases a rational regimen of out-of-door life, careful feeding and judicious exercise accomplish much in limiting the disease. In not a few cases under such treatment a permanent cure has been effected. But the onset of this widespread malady is so insidious, and its early signs so notoriously uncertain, that the morbid process often makes substantial inroads before the physician is aware.

With relative dulness over the apices of the lungs, harsh or rude broncho-vesicular breathing, prolonged expiration, persistent cough, irregular fever and progressive loss of strength and weight it is quite safe to make a diagnosis of pulmonary tuberculosis. The demonstration of tubercle bacilli in the sputum on repeated examination certainly clinches the diagnosis. When, however, the patient

simply complains of general weakness, moderate loss of weight, slight digestive disturbance, and perhaps occasional cough, but presents no distinctive physical signs, the matter of diagnosis assumes another aspect. It is just here the conscientious practitioner should bring to his aid all available diagnostic methods.

A complete anamnesis and thorough physical examination should never be neglected in every case of suspected pulmonary tuberculosis. Clinical examination of blood, urine and sputum is also imperative. Even after the most careful search, in many cases, we may still be in doubt as to the true condition. It is in such doubtful cases that we must resort to more exact and definite methods of diagnosis. Within the last decade a number of earnest workers have turned, with no little enthusiasm, to two agents which promise earlier and more exact information regarding tuberculosis pulmonalis. Tuberculin and the Röntgen rays have been on trial, and their respective merits tested.

While it is not the direct purpose of this paper to discuss the value of the tuberculin test, it is within bounds to state that under favorable conditions and with proper precautions it has, according to many observers, proved of distinct value in a number of doubtful cases of incipient tuberculosis.¹ In the recent volume of Osler's "Modern Medicine," Lawrason Brown states that "tuberculin should be used diagnostically only as a last resort. When a patient with suspicious symptoms, with indefinite physical signs and with no tubercle bacilli in the sputum on repeated examinations, wishes a positive diagnosis, tuberculin should be administered."²

More recently cyto- and sero-diagnosis, and a determination of the "opsonic index," have been suggested and tried in doubtful cases of tuberculosis. The most recent development along these lines is that of the "ophthalmo-tuberculin reaction of Calmette." By means of this delicate test it is claimed that a focus of tuberculosis in the body may be made evident by a definite conjunctival reaction to one drop of a one per cent. solution in water of dried tuberculin prepared according to Koch's original purified tuberculin method.³ While these newer methods have great promise for future diagnostic precision, it must be admitted that it is still too early to state exactly what their true value in early diagnosis will be. On the other hand, with larger experience and more refined technic, the

Röntgen rays have gradually advanced as a diagnostic agent and now offer valuable aid in recognizing early changes in the tuberculous lung.

It is manifestly impossible here to enter into an exhaustive review of the Röntgen rays in the diagnosis of all chest diseases. An attempt, nevertheless, will be made to give a just estimate of their value in the study of pulmonary tuberculosis. Their relative value as an early diagnostic method will be considered, and some principles of fluoroscopic and radiographic interpretation pointed out.

In a review of the literature upon this subject I have been impressed with its comparative sparsity in English. In German and French periodic literature more attention appears to be given to it. The lack of suitable radiographic reproductions is also noticeable. Some journals, such as the "Archives of the Röntgen Ray" and "Archives of Physiological Therapy," contain some excellent articles and very good plates. Other scattered articles throughout the medical journals have afforded valuable suggestions. Most recent textbooks on medical diagnosis give only brief consideration of the Röntgen rays as a diagnostic agent, while some of the more conservative writers dismiss them in a word or two.⁴ On the other hand, there are enthusiastic workers in Germany, France and America who, from rich experience with the Röntgen rays, have acquired good radiographic technic, and these entertain more hopeful views as to their probable value in the diagnosis of thoracic diseases. In the "Supplement to the Twentieth Century Practice" Knopf⁵ and Carl Beck⁶ regard the Röntgen rays as of permanent value in the diagnosis of such conditions.

Such a careful diagnostician as Judson Daland has affirmed that "no chest examination is complete without an X-ray examination,"⁷ and A. Stanley Green has gone so far as to write that "in unilateral limitation of the movement of the diaphragm we have . . . the earliest sign of pulmonary tuberculosis."⁸ In his "Röntgen Rays in Medicine and Surgery,"⁹ F. H. Williams was among the first, if not the very first, to point out this valuable sign of limitation of the movements of the diaphragm. Green takes occasion to further remark that "the X-rays should be used as an aid to diagnosis, and will never replace the older method of diagnosis by symptoms and physical signs."¹⁰ A middle ground of opinion is expressed by Lawrason

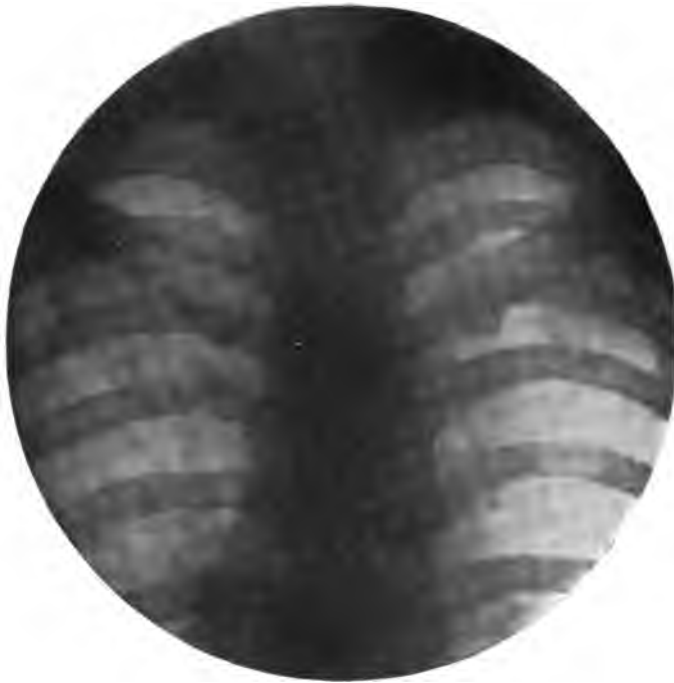
Brown in Osler's "Modern Medicine." He there states that "the chief value of the X-ray examination (in pulmonary tuberculosis) is for diagnosis, but it may yield valuable information during the course. It can hardly be said to repay the study necessary to acquire all the details, and should be relegated to the X-ray expert."¹¹ Other observers are not so optimistic, and claim that while the Röntgen rays reveal many interesting conditions in the lungs, they cannot be entirely relied upon until more definite physical signs are elicited. Between these views the opinions of various workers fluctuate. Nevertheless, a number of *principles* have been agreed upon in technic and interpretation which will here be considered.

It is generally acknowledged that the Röntgenographer should have special training and experience in the interpretation of his negatives. He must gradually acquire a technic upon which he can rely. As so many factors enter into the production of a satisfactory radiograph, the Röntgenographer must strive to control his results by altering not more than one or two factors at a time. It is evident that he should be thoroughly conversant with the electric current used, the coils or static machine, interrupter, spark-gap, meters, etc. The hardness and penetrating power of the X-ray tube should also be known. This may be measured with some standard penetrometer, as the Walter,¹² or estimated from experience by judging of the spark-gap and lighting of the tube. Besides these details the operator should understand the development of the negative from start to finish. He should acquaint himself with the action of various chemicals in the manner which they alter the negative.¹³ To skilfully interpret his results the worker must possess a sound knowledge of anatomy, physiology and general medicine. A familiarity with normal anatomical relations is absolutely essential. Thus equipped we may rightly expect from the Röntgenographer interpretations of his radiographs which shall prove of distinct and permanent value.

For the fluoroscopic examination of the chest the following general principles may be laid down:

1. The room should be perfectly dark, the operator having conveniently at hand various switches for the control of his apparatus.
2. The patient should be stripped to the waist, the clothing being arranged so that utmost freedom in respiration is allowed.
3. As the examination demands, the patient should be placed

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DIAGNOSIS: INCIPIENT PULMONARY TUBERCULOSIS

N. J., 11-25-'07. Age 18. Little cough. Hot flashes. Night sweats. Weakness and loss of weight. Stomach trouble.

Exam.: Respiration irregular in rhythm and depth. Resonance good on both sides and in back. Expiration slightly prolonged on right to second rib. Whispered and spoken voice slightly increased over same area. No bacilli found. Ophthalmotuberculin reaction positive.

NOTE.—Distinct difference in density at apices. Moderate mottling and haziness. Accentuation of peribronchial tissues.

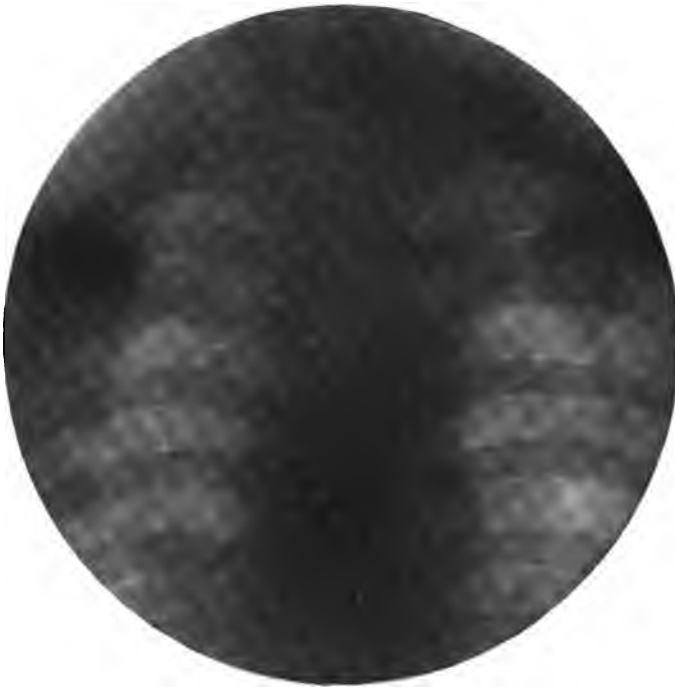


DIAGNOSIS: DOUBTFUL; PROBABLE EARLY TUBERCULOSIS

D. V. H., 12-16-'07. Cough, with blood in sputum. Occasional fever. No night sweats. Dyspepsia.

Exam.: Pale, callow. Supraclavicular fossae hollow. Rather flat note over both clavicles. Diminished resonance on right to second i.c.s. Fairly good resonance over left. Weak vesicular note on right, supra- and infra-clavicular. Whispered voice increased on right. No adventitious sounds. No tubercle bacilli.

NOTE.—Difference in density at apices. Slight mottling and haziness.



DIAGNOSIS: PULMONARY TUBERCULOSIS

R. J., 1-6-'08. Loss of weight and strength. Tuberculosis of wrist. Slight cough.
Exam.: Relative dulness over apices. Adventitious sounds over both apices.
Lagging on both sides. Ophthalmo-tuberculin positive.
NOTE.—Marked infiltration shadows at apices. Marked diffuse mottling.



DIAGNOSIS: CHRONIC PULMONARY TUBERCULOSIS

F. F., 9-9-'07. Age 25. Cough. Loss of weight. Evening elevation of temperature.
Exam.: Dulness over both apices to fifth rib on right. Tactile fremitus increased over upper chest. Breath sounds harsh, vesicular, and prolonged expiration on both sides. Somewhat amphoric on right side about second rib. Tubular breathing on left side in first and second i.c.s. Amphoric quality. Hyper-resonance in first and second i.c.s. on left side. Many rales. Voice transmission increased. Heart area dulness small. Bacilli found.
NOTE.—Infiltration shadows at apices. Cavity formation. Peribronchial thickening. Marked diffuse mottling.

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first with the chest to the fluoroscopic screen and later with his back to the same, the arms being raised above the head to avoid as far as possible the shadow of the clavicles over the apices.

4. The X-ray tube is placed on about a level with the ensiform cartilage at a distance of 18 to 20 inches from the chest.

5. For a clear cut view and rapid work a fairly hard tube with a penetration of 6 (Walter penetrometer) is satisfactory. The current, interrupter, and spark-gap should, of course, be regulated to meet the demands of the tube. Overheating of the tube is to be studiously avoided.

6. When a radiograph is desired the patient should first lie prone on the table with the sensitized plate, film side up, under the chest. Another plate is used for the patient lying on his back. For special postures the thorax may be supported on an inclined plane, or kept in position with sand-bags.

7. In making a radiograph, as in the fluoroscopic examination, a moderately hard tube with a penetration of 6 Walter may be used at a distance of 18 to 20 inches. The arrow of the tube should point to about the center of the chest.

8. The patient is told to take several long breaths and then hold the breath while the exposure is being made. In this manner radiographs with good detail and density have been obtained in from one to five seconds. With rapid exposures the study of chest conditions has been greatly facilitated. Hulst, and a few other workers, claim to have produced excellent results in $\frac{1}{4}$ to $\frac{1}{2}$ second exposures. In some cases, however, it is absolutely necessary to give longer ones, although the shortest exposures, consistent with good results, are recommended.

9. The operator should take reasonable precautions to protect himself and patient from needless exposure to the direct and secondary rays. This can be done by judicious arrangement of lead sheeting, compression diaphragm, and lead glass.

10. The negative should be carefully watched during development to note the order of appearance of the various parts, and their relative densities. It is true that a number of reliable workers place the plate in a rather weak developer and allow it to stand covered on a rocking device for 15 to 20 minutes. Some good results are obtained in this way. But it is more satisfactory to use a moderately

strong developer, and observe the development. After a certain amount of experience with a standard developer it is convenient to set a time for development, although the plate should be inspected occasionally. After this the negative must be rinsed in clean water and placed in some standard fixing bath. The finished negative should show up in good detail and density. A plate which fogs or blurs reveals faulty technic. For proper examination of the radiograph an illuminating box should be employed. Much more can be seen in a good negative under suitable illumination than in prints from the same.

II. One of the chief difficulties in the examination by means of the Röntgen rays has been a certain lack of definition in the radiographs due to the development of secondary rays. These render the outlines on screen or negative more or less indistinct and blurred. A number of workers have sought to get around this difficulty by the use of lead diaphragms which tend to cut out secondary rays. Negatives obtained with the lead diaphragm certainly give greater definition and, on the whole, are fairly satisfactory, although room for improvement remains. The use of such an apparatus for the study of limited portions of the lungs has proved advantageous. This has been applied in modified form by Albers-Schoenberg.¹⁴ Instead of taking the usual anterior and posterior views of the lungs, he arranges the diaphragm so that right and left lateral oblique views are obtained through the apices. In this manner it is claimed that much better study of the apices can be carried out. By this method it is possible to avoid more of the shadow of the clavicles than is obtained with the direct anterior-posterior view. While gathering data for this paper attention was first called to the importance of this improvement in technic by Professor George Dock. Since then I have had the privilege of inspecting one of the original Albers-Schoenberg compression cylinders in the possession of Dr. P. M. Hickey,¹⁵ of Detroit. After viewing some excellent plates obtained with his diaphragm I am more than ever convinced of its value.

The two methods of chest examination now available with the Röntgen rays are by means of the fluoroscope, and with a radiograph. For a complete examination both should be employed, as the former will reveal a number of changes not recognizable on plate or print. The negative, on the other hand, brings out into greater contrast

and detail the relative densities of consolidated areas, fibrosis, calcified tubercles and enlarged bronchial glands.

In order to interpret the appearance of a tuberculous lung it will be necessary to become familiar with a normal one. A few words will, therefore, not be out of place regarding the fluoroscopic appearances of a normal lung. One of the first things to attract attention is the excursion of the diaphragm with respiration. This is shown by a dense shadow which gradually moves up and down during expiration and inspiration, reaching a higher level on the right than on the left side. The height of the diaphragm on both sides during quiet and forced respiration may be noted and measured. Williams found that the normal average excursion on both sides during quiet breathing was about 1.25 cm.¹⁶ He determined the average excursion between expiration and forced inspiration to be 6.8 cm. on the right, and 7.1 cm. on the left side.¹⁷ The movements of the diaphragm should be studied both with the chest-to-front and back-to-front positions. The positions may easily be outlined with a blue pencil on glass or paper placed in front of the fluoroscopic screen.

The ribs appear on the screen as opaque shadows, between which the lung tissue will show with more or less translucency. The normal lungs are about the most translucent tissues in the body. The triangular space at the lower and outer part of the chest, and the apices, will appear most translucent, the former being frequently taken as a standard of translucency with which to compare other parts. The difference in luminosity in the intercostal spaces on both sides should be carefully studied, and their relative densities in quiet and forced respiration particularly noted. They become distinctly more translucent when a deep breath is taken. In a number of cases it has been shown that the apex of the right lung normally casts a slightly denser shadow than the corresponding part of the left. On deep inspiration, however, this usually clears up. Hickey has pointed out that "the shadows which emanate from the root of the lungs in the normal chest are distinctly those of the larger pulmonary blood vessels."¹⁸ These become congested if the patient holds the breath for some time, and give denser shadows. The denser shadows cast by the vessels should not be confused with pathological conditions which may appear.

The shadow of the heart may be easily seen, and its rhythmical movements noted. The normal shadow of the heart is rather fully rounded below, and roughly pear-shaped. It should appear "plump" with a fairly regular outline. Its position, outline, size, and regularity of movement should be studied. On either side of the sternal shadow, and along the margin of the heart outline, some observers make out a slight mottling and a rather dense fibrous appearance due, they declare, to the mediastinal fibrous tissue and some bronchial glands. Hulst thinks that such fluoroscopic pictures, described by some observers, are quite subjective, and he would lay greater stress on the study of well made radiographs. The outline of the heart together with some of the mediastinal tissues form what he designates as "the H." Upon the mottling of the lung adjacent to the heart, and the accentuation of "the H," Hulst lays a good deal of stress. In a number of incipient cases of tuberculosis he claims that this "H" is accentuated, and enlarged bronchial glands can be demonstrated.

With a chest of pulmonary tuberculosis many workers describe a fluoroscopic picture which they regard as highly characteristic. In the first place they note an unilateral limitation in the movements of the diaphragm on the affected side. This should be studied both from the front and back. On deep inspiration the shadow may reveal jerky, hesitating, stuttering movements. It may be greatly limited or even immobile. Some careful observers avow that this unilateral limitation is the earliest sign of pulmonary tuberculosis, and can be determined before any other signs are apparent.

Practically every observer agrees that a difference in the density at the apices, as revealed by a difference in luminosity, is a suspicious sign, especially if accompanied by the so-called "mottling." These differences in density should accordingly be noted and carefully marked out.

While Hulst¹⁹ recognizes the great value of the fluoroscope in the study of the moving diaphragm, heart, etc., he says that he thinks a number of pictures described as "mottlings" and "darkenings" are purely subjective, it being extremely difficult to obtain uniform results for interpretation. For such conditions he prefers a radiograph made by rapid exposure. He then obtains a clear cut, well defined negative showing mottling about the bronchial glands, differences

in opacity at the apices, and an accentuation of "the H." These signs, together with unilateral limitation of diaphragmatic movement, give him grounds for pronouncing such a case pulmonary tuberculosis, whether other signs have been elicited or not.

The position, outline, and size of the heart also give a clue to the morbid condition in the lungs. A displaced organ may mean a fibrosis in the lung which, by contraction, has drawn it aside. The presence of fluid in the pericardium or pleura, or in cavities within the lung, may displace the heart. Aneurisms and other tumors may produce a similar condition. It has been noted by some writers that a small heart in young subjects is frequently associated with pulmonary disease, and this suggests a more unfavorable prognosis. Patients, especially the young, with small hearts seem to suffer a special predisposition for tuberculosis of the lungs. When first studying a number of chest plates with Mr. Willey, he pointed out to me the irregular outline and flabby appearance of the heart shadow in chronic cases of pulmonary tuberculosis. Recently I have had the pleasure of seeing some of the plates in the collection of Dr. Hickey who also affirms that the irregular, flabby appearance of the heart is frequently associated with tuberculosis. When the heart shadow loses its characteristic pear-shape, and becomes elongated and irregular, it should arouse suspicion. Such a heart Hickey has aptly characterized as the "Fuzzy Heart."

With a well-taken radiograph, it has been seen that a number of interesting pathological changes may be studied. The radiograph certainly reveals many finer details impossible to be seen on the screen. It should be remembered, however, that the radiograph is in no real sense a picture or photograph of the lungs. It is true that the stereoscopic negatives are enhancing the value of radiographic study, but still a great deal is to be desired from them. The radiograph is rather a record of relative densities of the parts examined, and *should be interpreted in terms of density*.

The interpretation of the shadows of other pathological changes in many instances is quite difficult. In giving a resumé of these I cannot do better than to follow the interpretations of G. E. Pfahler²⁰:

"Old pleural thickening will be recognized by its greater opacity, as compared with normal lung substance and pleura.

Pleural effusions may be revealed by their more uniform density and change of position, at times, with change in posture of the patient. Old calcified tubercles give the most decided shadows, and lesions of this kind can be recognized as small as $\frac{1}{8}$ of an inch in diameter. Old scars or fibrous tissue cast a less dense shadow and require larger lesions, but they can usually be recognized by their band-like appearances."

"Consolidations vary in the density of their shadows with the size of the lesion; but an area one-half inch in diameter can be recognized in an emaciated person. Consolidations seldom occur singly, therefore they give the lung a mottled appearance, except when there is massive consolidation. Consolidation can be recognized by comparison of the suspected area with that of the opposite lung or other parts of the same lung. It is important to note that tubercular deposits, or the affected areas lying in different planes, are thrown on the plate in one plane, thus giving to the negative an appearance of more extensive involvement than really exists." Areas which show a distinct increase in transparency are very suggestive of cavities, especially if they are surrounded with an area of greater density from consolidation. Emphysematous areas are also noticeably transparent. A dense shadow may be found on one side of this area, but it is likely to have the other side continuous with more or less healthy lung tissue, and therefore can be differentiated from the cavity."

The Röntgen rays, then, may prove of value, not only in certain cases of incipient pulmonary tuberculosis,²¹ but in following up the course of a chronic trouble. When lesions are known to exist on one side, the rays might prove of distinct value in determining whether the other lung was becoming affected. This has been demonstrated from a number of plates of competent observers. At best, however, it is usually very difficult to detect incipient tuberculosis, although sub-acute and chronic forms are readily demonstrated on well-made negatives.

From the foregoing discussion it is seen that the real value of the Röntgen rays depends upon many factors. From a review of the literature upon this subject, the kindly instructions of Mr. Willey, valuable suggestions from Drs. Dock, Hulst and Hickey, and from the personal study of a large number of negatives and radiographic

reproductions I believe the following conclusions are warranted:

1. The use of the Röntgen rays in the diagnosis of pulmonary tuberculosis requires of the Röntgenographer a thorough training in technical methods of handling his apparatus and in developing his negatives. His interpretation of results will depend largely upon his general medical training, and experience in studying chests by means of fluoroscope and radiograph.

2. The rays when rightly used offer a valuable aid to the already useful methods of physical examination. The latter, however, should never be neglected.

3. While confirming many times the results of the older methods, the Röntgen rays have a peculiar value in showing more exactly the extent, position, and something of the nature and progress of the process in the lungs. The diagnosis of incipient tuberculosis, even by means of the rays, is often a difficult matter. Some observers claim to have discovered by means of the rays the morbid changes in an apparently sound lung before they could be elicited with auscultation and percussion.

4. With unilateral limitation of the movements of the diaphragm; darkening at the apices, or even diffuse haziness, with distinct mottling; accentuation of density about the bronchial lymph glands; relative opacity on deep inspiration; alteration of the normal outline of the heart shadow, we are justified in treating a case as incipient tuberculosis, even if other physical signs are absent. The presence of distinct areas of calcified tubercles, marked peribronchial thickening, infiltration shadows at the apex, and increased transparency of cavities give us grounds for a definite diagnosis.

5. In every well-equipped hospital Röntgen ray examinations of the chest should be made a matter of routine procedure, especially in all suspicious and doubtful cases. Radiographic study of chronic cases may also prove advantageous in watching the progress of the lesions.

6. Finally, no opportunity should be lost to examine post mortem findings of patients who have previously had a Röntgen ray examination. In this way we may be able to correct faulty interpretations, and thus accumulate data for a more rational diagnosis. This has largely been neglected in the past, but should henceforth receive the earnest attention of all interested in the subject.

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THE DIFFERENTIAL BLOOD COUNT AS AN AID IN
THE DIAGNOSIS OF EMPYEMA IN CHILDREN

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The diagnosis of empyema in children is usually easily made. Many cases, however, are obscure. It is this class of cases that will baffle the physician, and all necessary aids, be they clinical, physical or laboratory, should be invoked to solve the question. In searching for an empyema one must bear in mind that it is the most probable cause of persistent fever following a pneumonia, that is, a pleuro-pneumonia. Pleurisy, *per se*, is frequently overlooked in children, especially so if only a small area is involved. Adhesions found post mortem have frequently caused surprise when no physical signs were detected *intra vitam*.

Empyema may follow any acute infection; thus I have seen it during my service at the Riverside Hospital, associated with measles. I have also seen it as a complication of and associated with scarlet fever. Not infrequently it is found as a complication of diphtheria. In like manner I have seen empyema associated with follicular tonsillitis, caused by the invasion of the streptococcus pyogenus aureus.

It is hardly in the province of this paper to deal with the pathology or bacteriology of this disease, but to casually mention a few of the noteworthy features, to be considered as aids, in the diagnosis. First, we must rely on the physical examination. Pus, be it localized in a small area or spread over a large area, will usually give rise to two distinct and cardinal symptoms. They are: dullness on percussion, and marked diminution or absence of the respiratory murmur. The breathing sounds are masked—due to the barrier caused by the pus. The temperature curve is peculiar. While in some instances the type of the fever is one that will suggest intermittent fever, in other cases it may remain at or near normal.

Many cases of empyema give rise to symptoms which form a clinical picture almost identical with malaria, that is, a picture in

which the fever is higher in the evening, with a morning remission of at least one or two degrees. Thus a temperature of 103 degrees F. in the evening will be about 101 degrees F. in the morning. Along with this rise of temperature there may be chills and perspiration, usually during sleep. Pains in the muscles or malaise and a tired feeling is usually described. Cough is frequently present.

Grocco's triangle is not so easily mapped out. While it may be an easy matter for an expert, the general practitioner will require considerable experience before familiarizing himself with this phenomenon.

The blood examination is to me the most valuable aid in strengthening the diagnosis. The following cases were seen by me recently in consultation, and will give a fair idea of the value of the differential leucocyte count in determining the probable presence of pus.

Sidney L., 5 years old, was seen by me in consultation with Dr. S. Herman, of Brooklyn. Eighteen days ago he had an attack of tonsillitis lasting three days. There was nausea and vomiting. No eruption, no exanthem. A few days later had a chill and sore throat and swollen joints. Recovered from this second attack in about two days. The temperature since the first attack has varied. In the beginning it was 104 degrees F. and now remains at 101. The child complains of headache and is inclined to constipation. When seen by me during the third week of illness, the urine was bloody and very scant. It contained albumin and granular casts. The child coughed continuously. There were rales scattered over both sides of the thorax. Percussion was resonant on the left side, marked dulness on the right side, lower lobe. The physical signs showed almost an absence of the respiratory murmur. From the previous history of throat symptoms and the temperature which rose to 104 degrees F., the vomiting and the hemorrhagic nephritis, I diagnosed a typical scarlet fever. The blood examination, made by Dr. F. Sondern, was used as an aid to the diagnosis of empyema. It showed

Small lymphocytes	15.2 per cent.
Large lymphocytes	2.0 per cent.
Polynuclear neutrophils	82.4 per cent.
Eosinophiles	0.4 per cent.

The high polynuclear percentage supported my diagnosis of empyema, and the exploratory puncture revealed pus, of which I succeeded in removing 240 cc. An uneventful recovery followed.

Case II.—Hyman F., 20 months old, was seen in consultation with Dr. P. Sussman. During the second week of scarlet fever, the temperature suddenly rose to 105 degrees F., respiration to 60, pulse to 150. There was bronchial breathing and marked dulness on percussion. The diagnosis of lobar pneumonia was made. Two weeks later I was again asked to see this case because of marked dyspnea and cyanosis. The respiratory murmur on the affected side was distant. Marked dulness, in some areas flatness, was noted. Friction sounds could be heard. The temperature remained between 101 and 102 degrees F. The blood examination, made by Dr. Branner, showed the following:

Large lymphocytes	9 per cent.
Small lymphocytes	22 per cent.
Polynuclear neutrophiles	62 per cent.
Eosinophiles	1 per cent.
Basophiles	1 per cent.
Transitional	2 per cent.
Mononuclear	4 per cent.

The polynuclear percentage of 62 per cent., in this case, excluded the probability of the presence of pus. An exploratory puncture revealed a serous liquid which flowed freely, so that I could easily aspirate 240 cubic centimeters. The examination of this effusion showed:

Polymorphonuclear neutrophiles	55 per cent.
Lymphocytes	45 per cent.

By comparing the differential blood count in the two cases just cited it is easily seen how valuable the examination of one drop of blood can be in strengthening the diagnosis of empyema.

I. A CASE OF PYLORIC CANCER; GASTRECTOMY;
GASTRO-JEJUNOSTOMY—NO EVIDENCE OF RECURRENCE AFTER NEARLY TWO YEARS, WHEN
OVARIES WERE REMOVED FOR SARCOMA—
II. TWO CASES OF VERY EARLY CANCER
ABOUT THE PYLORUS

By JOHN B. DEAVER

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I. The cases of gastric carcinoma that ultimately reflect credit upon modern surgery are, unfortunately, not many. Patients with this lesion usually have to run a long gauntlet of doubt and delay. Even early removal of a small growth does not guarantee exemption from recurrence. Richardson removed a breast in the center of which was found a nodule of cancer not larger than a pea, and says: "This patient was given the very best chance of permanent recovery, for it was the earliest and most favorable case upon which I have ever operated. By the perversity of things and from causes which no one understands, this patient in a comparatively short time died of a general metastasis."

The following case shows two main features of interest. In the first instance, a thorough post mortem examination two years after resection of the pylorus failed to reveal any sign of recurrence of cancer. In the next place, but few patients undergo the rare experience of being attacked consecutively by cancer and sarcoma. Again, the history of dyspepsia extending over $2\frac{1}{2}$ years illustrates forcibly Richardson's warning "that persistent gastric symptoms be not dismissed as dyspepsia." I myself have recently pleaded for an exhaustive study of patients exhibiting chronic dyspepsia. (Bost. Med. and Surg. Jour., January 9, 1908.)

Case 1.—Mrs. E. B., aged 56, wool-grader, was admitted to the German Hospital May 16, 1906, with a history of dyspepsia during the past $2\frac{1}{2}$ years, and loss of 90 pounds in weight in the same time. For about a year vomiting was present, at first immediately after meals, and later, vomiting of retention of one or more days' food. Several months before admission the patient vomited clear red blood, but no coffee-ground material. There was never any

pain, only an uncomfortable feeling when the stomach was full, and even this is absent after relief by vomiting. Complained of eructations of gas.

Examination showed emaciation, and the stomach dilated laterally and 3 cm. below the umbilicus. A mass was felt below the right ninth costal cartilage.

The hemoglobin was 72 per cent.; reds, 3,880; whites, 5,200.

A diagnosis of carcinoma of the pylorus was made, and at operation the neoplasm was found involving and completely stricturing the pylorus. (See illustration.) The pylorus, tumor and adjacent part of the stomach were removed, and a posterior gastro-jejunostomy performed. Pathological examination revealed carcinoma.

When the patient returned, April 27, 1908, nearly two years later, she said that her symptoms were immediately relieved, and that her weight had increased from 115 pounds before the operation to 185 pounds afterwards, and that she retained this increase until three months ago.

For the past three months the patient has complained of dragging pains across the back and vesical irritation—frequent micturition, etc., and occasional vomiting of bile. She has gradually been losing strength, appetite and 15 pounds. Her menopause occurred 7 years ago, and she has had no discharge or any other pelvic symptoms since then. Her abdomen has always been prominent, and she was unaware of any abdominal growth.

Examination of the heart revealed weak and muffled sounds. The abdomen was prominent and protruding. Large, firm tumor masses were felt above the pelvic brim. There was shifting dullness in the flanks. Pelvic examination palpated a firm mass on each side of the uterus, but the uterus was not enlarged.

The question of recurrent carcinoma of the stomach was suggested by the occasional vomiting, and the loss of flesh and strength. The presence of metastatic cancer was suggested by the ascites and the pelvic tumors. After carefully studying the case, I decided that the pelvic tumors were sufficient to account for the vomiting, which was therefore reflex. Hemoglobin 77 per cent; whites, 11,800.

At the second operation the stomach was found in good condition and free from new growth. Considerable ascitic fluid was

present. A large, roughly nodular, firm mass involved each ovary, the right being about the size of double fists, and the left about three times as large. The left mass was adherent to the floor of the pelvis and the fundus of the uterus. Complete supravaginal hysterectomy was performed.

During the operation the patient took ether badly and received 2,200 cc. of saline solution, intravenously on the operating table. Twelve days after operation the patient developed broncho-pneumonia and died.

PATHOLOGICAL REPORT.—The specimen consists of two masses of tissue. The larger measures 29x13x100 cm.; the smaller 12x9x5 cm. Lobulated, nodular and firm. The cut surface appears divided into lobules and is very uniform, milk-white in color, not friable, and feels quite fibrous. The same description holds for the larger mass. The uterus appears infantile, and measures 2x2.5x2 cm. The endometrium, metrium, and parametrium are normal.

This case illustrates well the bright possibilities for cure when the zone of resection clears the area of the neoplasm by a goodly margin. The modern operation for mammary cancer demands removal not only of the whole breast, but of the subjacent pectoral muscles and enlarged regional lymph-nodes as well. Therefore it behooves us in gastric cancer, also, to intercept cancer cells on their way to lymph-nodes, and the nodes themselves, and to accomplish this a wide sweep of the growth must be made.

II. These two cases of very early carcinoma emphasize the following statement by Moynihan: "At this moment the most expert clinician in the world cannot make an early diagnosis of cancer of the stomach. If, then, patients suffering from this disease are to have any hope of cure it is undeniable that the diagnosis must be made by inspection of the parts during life. I think there can hardly be a more promising occasion for the study of the pathology of the living than that afforded in the case of carcinoma of the stomach."

A. CARCINOMA OF PYLORUS; PARTIAL GASTRECTOMY; POSTERIOR GASTRO-EXTEROSTOMY; RECOVERY

A. F., male, aged 39, admitted to the German Hospital Janu-

ary 8th and discharged January 27, 1908. For the past six years at intervals of from four to six months, and with duration of from four to eight weeks, complained of pain under costal margin, at ninth right costo-chondral junction, and extending from this point to the right.

The last exaggeration of symptoms began about two weeks ago. For the past two months, aside from pain under the costal margin, has had about twice daily darting pain in the epigastrium, referred through to back.

Now has pain just before eating and from two to three hours after eating. Suffers much from borborygmi.

Clinical examination revealed a thin, rather poorly nourished man, with sallow complexion. The organs were apparently normal. The stomach capacity was 1,200 cc.

Examination of the stomach contents revealed no free hydrochloric acid, nor lactic acid, but total acidity of only 1.85; no Oppler-Boas bacilli were found. The stools revealed occult blood. Hemoglobin, 95 per cent.; reds, 4,880,000; whites, 9,100. Differential leucocyte count, polymorphonuclear cells, 66.5 per cent.; small mononuclears, 12 per cent.; large mononuclears, 12.5 per cent.; eosinophiles, 3 per cent.; transitional, 6 per cent.

At operation, a small, hard mass was felt on the inferior wall of the pylorus. There were adhesions between the gall bladder and the under surface of the pylorus, and many about the pylorus and first part of the duodenum.

Resection to the extent of the proximal two inches of the duodenum, and of the distal four and a half inches of the stomach was made, and posterior gastro-jejunostomy performed.

Minute examination of the growth revealed adenocarcinoma.

Here, then, is a patient who complained merely of dyspepsia and a fixed pain. There was no vomiting of coffee-ground material; there were no Oppler-Boas bacilli or lactic acid. See how stealthily the cancer was invading the stomach.

B. CARCINOMA OF THE DUODENUM; EXCISION OF THE DUODENAL WALL; ENTERORRHAPHY; POSTERIOR GASTRO-JEJUNOSTOMY:

RECOVERY

W., female, aged 44; Hungarian; domestic; admitted to the

German Hospital November 13th and discharged December 11, 1907.

On account of the patient's unfamiliarity with any language known to the staff a very brief history only could be obtained.

For the past four months had vomited soon after meals. For the past two weeks had had epigastric pain.

Clinical examination revealed a yellowish complexion; tongue heavily coated with whitish fur, and tip red; breath extremely fetid. The abdomen showed tenderness midway between the ensiform and the umbilicus, and a little to the right of this region. Stomach capacity, 1,500 cc. Examination of the stomach contents revealed no abnormality. Hemoglobin, 75 per cent.; reds, 5,040,000; whites, 8,000.

At operation, on the anterior wall of the first portion of the duodenum was a hard, infiltrated area, less than the size of the little finger nail. This was removed, and the rent repaired. Posterior gastro-jejunostomy was performed. Many fine and dense adhesions were found between the stomach and liver, and between the duodenum, gall bladder and stomach.

After the operation there was no vomiting as long as the patient remained in the hospital.

Histological examination of the growth revealed evidence of chronic ulceration of the duodenal mucosa, and inflammatory hyperplasia with cystic dilatation of the ducts. Below the submucosa, and intimately adherent to it is a carcinoma of the adenomatous type, seemingly derived from the pancreas, of which tissue there are some areas in the section.

My reason for not making a resection was on account of the doubt of the character of the mass removed and again intending to do a second operation. The patient developed a post operative mania. It was now learned that the patient was the subject of maniacal attacks, therefore I deemed another operation inadvisable.

APPENDICITIS: EXTRA SIGNIFICANCE OF LEFT SIDE PAIN

By JOHN F. ERDMANN

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New York

On several occasions I have called attention to the possibility of pain being misplaced in cases of appendicitis in children, (New York Medical Journal, March 19, 1904; New York Medical Record, May 11, 1907). I also have called attention to the following, to me, practically pathognomonic sign: "Almost invariably the little patients place their hands in the region of the appendix to ward off manipulation in this region."

I wish in this contribution to call attention to the significance of pain when present (in children as well as in adults) in the left lower quadrant. For more than a half decade I have called the attention of my consultants and students to the fact that pain present in the lower quadrant with evident tenderness, pain and resistance in the right quadrant, appendicitis in other words, and without any marked evidence of abdominal distention, signifies free fluid in the pelvic cavity, varying in character from a serous to a sero-purulent or purulent nature, although the appendix, and abscess if present, is thoroughly walled off. I do not recall making a failure in this diagnostic factor in a single case during this period of time; and in making such a statement I do not wish to be understood as including the ordinary amount of peritoneal fluid one usually finds in the pelvis, but a quantity in excess to such a degree as to be measurable in ounces or half pints.

Naturally the early recognition of this symptom, which is an early precursor of general peritonitis, aids us in our prognosis and gives us more definite reason for demanding emergency operative interference. This symptom or sign must not be confused with Blumberg's, in which the pain is increased upon releasing the palpating hand; while in the symptom just recorded the pain is evidenced upon pressure; nor with the left sided pain seen frequent enough, to be confusing, in the early period of this disease, that is, in the first

few hours or a day, which is significant only as an expression of the sympathetic system, or as in extremely rare instances of a displaced appendix.

In my paper, "Appendicitis in Infants and Children," (*Medical Record*, May 11, 1907) I recorded one hundred cases in a period of five years. Of this number in over 33 1/3 per cent. this symptom was present.—That this occurs in adults I can also state with a degree of positiveness, but it is, at least in my experience, not so frequent as in children.

On June 7th of the current year I was called to see a male, thirty-seven years of age, who gave a history of two days' illness, temperature 103 2/5 degrees F., pulse 126, exquisite tenderness on his right side with marked resistance, and a mass that was quite distinct under ether. There was pain in his left side of the character described, and with all the evidence of Blumberg's sign. This latter sign I consider only as expressing evidence of an acute or subacute inflammation in the abdomen or pelvis. I made a diagnosis of gangrenous appendicitis with walling off, and in all probability free fluid in quantity in the pelvic cavity.

Upon opening the abdomen a perfectly walled off, completely gangrenous appendix, with three foreign bodies and perforated, was found, while a full pint of sero-purulent fluid was evacuated from the pelvis.

A PATHOGNOMONIC SYMPTOM (OR SIGN) OF APPENDICITIS NOT HITHERTO DESCRIBED

By H. ILLOWAY

New York

The diagnosis of appendicitis is not always as simple a matter as is commonly believed. Even when the classical symptoms of the acute form of the disease, great pain in the right half of the lower abdomen, great sensitiveness to the touch there, elevation of temperature, even contraction of the abdominal muscles, are present, it is

not necessarily the appendix that has produced these phenomena.¹

Much more is this true of the ambulant cases, those cases in which the patients go about, pursue their vocation, and at times complain of pain in the right half of the lower abdomen—over McBurney's point, in the inguinal region, or even about the umbilicus. The factors that may cause this particular localized pain are quite numerous and have already been enumerated, in part, elsewhere.² I myself have met with some cases of great interest in this respect, and shall take occasion to report them more in detail in a further study of this subject.

The very first and most important question that confronts the physician when consulted by a person of this group, or even when called to a case of a more acute character, is, Is this appendicitis?

Even though by the aid of the various diagnostic measures some other ailment, one that can give rise to all the various phenomena pertaining to the particular disease under consideration, is discovered, the question as to the presence or absence of appendicitis of an acute, subacute, or chronic character is thereby not yet definitively determined. The appendix may have become involved in the primary malady, and grave consequences might result from its being overlooked. This is well shown by the following case which came under my observation in 1890:

Mrs. S., 35 years old, married, no children (had a miscarriage in the second year after marriage and had not been pregnant since), 5 feet tall, weighing 155 pounds, rather robust and roseate in appearance. For a number of years she complained at times of pain in the right half of the lower abdomen; the pain was not severe, but annoying. However, as she had no fever with it and it did not prevent her from attending to her household duties and her social engagements, she paid but little or no attention to it. Finally, and chiefly from a desire to have a child, if possible, she placed herself in the care of a gynecologist, who, after he had examined her, in-

1. *La Presse Médicale*, 1906, No. 65. A Propos de L'Appendicite. Par M. J. L. Faure, Professeur agrégé, Chirurgien de l'Hôpital Tenon. *The Lancet* (London), May 23, 1908. The Use of the X-Rays in the Diagnosis of Appendicitis and some other Abdominal Conditions. By Sir W. H. Bennett.

2. *Loco citato*.

formed her that she had chronic inflammation of the right ovary, a backward displacement of the cervix uteri, and several other minor derangements of the genital organs. Local treatment was applied and was continued for quite a long time. Early the next morning following the day upon which she had received her last treatment, which she said had been unusually severe and forcible—a sort of massage and pushing up, as she explained it, so that she suffered much on the walk home, she was seized with a terrific pain in her abdomen, such as she had never experienced before. Suddenly the severity of the pain abated and she felt as if something were running from her vagina. She held a basin to herself and a quantity of fluid, purulent and containing some shreds, was discharged into it.

I was called to see her some three or four hours later. I found her lying on a sofa, dressed, suffering considerable pain, with marked tenderness over the abdomen, and feeling very weak, but not collapsed. She showed me the fluid that had come from her, and it was just as described. I prescribed morphine, $\frac{1}{4}$ of a grain, to be repeated in half an hour to an hour, and after that *pro re nata*. On my second visit, three hours later, I made the diagnosis of rupture into the vagina of a chronically inflamed appendix, and advised her instant removal to a hospital with a view to an immediate operation. At the request of the husband, the gynecologist who had hitherto treated her was called in to do the operation. He came and made a diagnosis of hematocele and adhered thereto until on operation the ruptured appendix was demonstrated in unmistakable fashion.

In the course of practice I have time and again met with the conditions referred to, and have always felt the responsibility resting upon me in advising or counselling as to the one or the other course to be pursued. In fact, I have felt the responsibility much less when I could advise and even urge operative interference than otherwise.

In the procedure of these examinations there developed itself, naturally, as it were, one sign or symptom which I have come to look upon as *pathognomonic of appendicitis*, and which has been of the greatest service to me.

It is elicited in this manner:

The patient is placed at full length upon the operating table

or chair for the purposes of examination. This is made in the usual way, and when all the data have been obtained I tell him or her, (a) to flex the leg upon the thigh and the thigh upon the trunk.

I now ask if the movement, or rather the upward pressure thus made, causes any pain or soreness in the lower portion of the right half of the abdomen, *i. e.*, the appendicular region.

If the answer is "no" or "very little," either I myself, flex (b) the thigh more closely, more forcibly upon the trunk or direct the patient to do so. Again I inquire, does it cause pain or soreness, or does it *increase* the pain or soreness?

I now have the patient, (c) extend the leg to full length with a quick and rather sudden movement, and ask whether this has caused any pain or soreness.

If neither of these movements has caused any appreciable pain or soreness, I direct the patient to execute the same movements with the left leg, and to compare the sensation produced, as to whether it is any different from that caused by the right leg, or whether it is the same on both sides.

I have found that invariably (and in a number of instances this has been verified by a subsequent operation) only when appendicitis was present, whether as the primary malady or as a secondary involvement, did the flexion of the thigh upon the trunk give rise to a feeling of pain or a sensation of soreness—deep down (as the patient would say); and even when this was not so marked the *rapid extension* would cause quite an accentuation of it.

It may happen that the *more forcible flexure* of the thigh (b) upon the trunk may cause some slight pain or soreness, but if this is not due to an appendicitis there will be no pain or soreness on *extension*.

It is the pain or even soreness produced *both on flexion and extension*—and I lay the greater stress on the extension—that I regard as a positive and unfailing sign of the presence of appendicitis.

In addition, this sign or symptom has the further advantage that it will furnish us, by the degree of pain or soreness produced by the movements, with valuable indications as to treatment, as to whether we should advise an early operation or whether we may, with safety to the patient, attempt the cure of the ailment by other measures.

In conclusion, I would add that this symptom suggested itself to me from this: A person with whom it was a question of appendicitis or not came for examination, and, while lying on the chair, said that he felt the pain in walking. To discover whether the walking really caused pain in the appendicular region, and, if so, the degree of pain caused, I had him while he was thus lying there, execute the movements just described, which resemble somewhat those made in the act of walking.

THE DYSPEPTIC TYPE OF APPENDICITIS

By CHARLES GREENE CUMSTON

Boston

In a most interesting paper entitled "Chronic Dyspepsia" from the pen of Dr. John B. Deaver, which appeared in the Boston Medical and Surgical Journal, January 9th of this year, he says: "I therefore have no hesitancy in stating that the appendix is the most frequent, but the least recognized, cause of chronic dyspepsia." Similar statements have been made by Dr. James G. Mumford, of Boston, in a paper published a year or so ago in the New York State Journal of Medicine, and from no little personal experience I am led to believe that the truth of these statements is undoubted. In young children, that form of dyspepsia characterized by paroxysmal vomiting is not infrequently symptomatic of chronic appendicitis, an interesting point in symptomatology to which I shall refer more lengthily in another paper.

As I understand it, the dyspeptic type of appendicitis may undergo its evolution under several different aspects, but whatever may be the type, the digestive disturbances are always the same and the cases differ from one another only by the presence or absence of attacks of appendicitis at the beginning or during the progress of the affection. By the grouping of the attacks, their manner of appearance and their symptom-complex, a fairly good clinical classification can be made. The digestive phenomena observed may involve the entire gastro-intestinal tract, and each portion of the

latter has its own particular manner in reacting to the lesion in the appendix. In order to facilitate the study of this question, I shall consider the symptoms presented by the tongue and those of gastric and intestinal origin.

The tongue in cases of appendicitis is, in point of fact, quite important to know about, although it cannot be said to be absolutely characteristic. In most cases of the type considered in this paper it is covered with a thick, grayish coat, excepting at its point and on the borders. It is apt to be dry, and to this is added a diminished amount of saliva, which contributes to the rather marked thirstiness observed in these patients.

The stomach also reacts from the presence of the lesion in the appendix, and frequently it is for gastric symptoms alone that the patients consult the physician. Little by little the appetite diminishes, and it soon reacts on their general condition. This anorexia is also sometimes accompanied by a decided distaste for food, principally for sauces and red meat. Finally, the patients are reduced to a diet of milk and eggs. If they continue to indulge in food that experience has shown to be bad for them, the result is diarrhea preceded by painful phenomena due to indigestion. Diarrhea, however, is infrequent, because the patient will abstain from food which he knows his stomach cannot take care of.

Often it is this particular type of anorexia which is met with; the patients do not eat, not because there is loss of appetite, but for the reason that they know only too well that the ingestion of food will bring about an attack. In some cases of the acuter variety the patient is seized with severe abdominal pain after eating, and it is so severe that of their own accord they avoid food. In other cases, even when the painful phenomena are not so accentuated, they nevertheless weigh upon the patient's mind when the time of digestion approaches. At this time they complain of a tight feeling in the region of the stomach, giving rise to considerable fatigue and occasionally dyspnea. Anorexia and epigastric pain represent the two first symptoms of gastric origin complained of. A decided tardiness in the functions of digestion should also be referred to. After eating, a sensation of heaviness and fatigue is complained of, resulting in an absolute inaptitude for work, and there may even be somnolence. There is flatulency and distention of the stomach, and

not infrequently these subjects are treated as cases of dilatation of the stomach or other lesions.

Vomiting is infrequent, and, in point of fact, gastric atony dominates the entire symptomatology. In the few cases where vomiting easily occurs it may be due to hypertonia with hyperpepsia, but as yet this statement cannot be affirmed, because this condition of affairs is rather the exception. The belching of gas and nausea are more common, and in almost all cases I find it mentioned in the history of the case.

Palpation and percussion give little information and, at the most, only show that there is dilatation and atony of the stomach. Palpation is not painful, and the infrequent instances where the epigastric region is sensitive only lead to an erroneous diagnosis. Ewald states that analysis of the gastric contents throws no light upon the condition.

Beside these gastric symptoms we must consider the intestinal disturbances, which in some instances may, in order of development, precede the former. Constipation is the first symptom, and it would appear that this is nothing new, because in point of fact it is one of the most constant symptoms of ordinary appendicitis. But I would point out that it is not that form of constipation with which one is dealing here, and this symptom acquires, in the dyspeptic type of appendicitis, a special diagnostic value on account of its early development and tenacity. In these cases it has been present for months, or even years, and very often it has been for a long time the only symptom of the affection. These patients suffering from this constipation, which has a very unfavorable action on the digestive tract and nervous system, are constantly under medical treatment, which usually is completely unsuccessful. Alternatives of constipation and diarrhea are not frequently noted.

Painful phenomena may sometimes be quite pronounced, and when this is the case they are met usually in the form of generalized colic without any precise localization in the right iliac fossa; they occur after eating and may be so severe as to cause the patient to cry out. In some patients one will meet with colics arising in the large intestine, such as are met with in muco-membranous colitis, a condition of affairs which is not made for facilitating the diagnosis, all the more so from the fact that the latter affection may occasion-

ally complicate the dyspeptic type of appendicitis. Palpation and percussion show a distention of the cecum and entire colon, and, like the stomach, intestinal atony and paresis is the cause.

All these digestive disturbances have an unfortunate effect on the general condition and nervous system of these patients. Being insufficiently nourished they lose flesh, oftentimes with extreme rapidity. At the same time the general health becomes poor and, from the lack of nutrition, an extreme weakness and constant fatigue are complained of. In some cases, more particularly in young women, the general lassitude may reach such a degree that they remain in bed the greater part of the time. The skin becomes pale, or sub-icteric, and one may, under the circumstances rightly suspect the possibility of malignant disease. This condition has been termed by some French writers as "appendicular cachexia," and, although somewhat pretentious, this term is not too exaggerated for certain clinical types encountered in practice. The clinical picture is not always so bad as just described and there are many shades which vary according to the case.

Nervous phenomena are rarely wanting in this symptom complex. The patients become irritable, mentally disturbed and finally end up as hypochondriacs, while, in the female, various phenomena of hysteria become manifest. In some cases I have known genital incapacity to result which greatly contributed to exaggerate the neuropathy which, in itself, was the cause.

Given these digestive and general symptoms what disturbances are to be noted in the appendix itself? From this standpoint we must consider the patients during or between the attacks. In the typical form of dyspeptic appendicitis there are no attacks of appendicitis, properly speaking, but, if one carefully goes into the history of the case, or if the patient is followed for a certain length of time during the progress of the affection, one will always find very slight attacks with a little rise in temperature accompanied by some abdominal pain on the right side of the abdomen. Thus, as will be seen, the symptoms are far from being like the alarming and sudden ones encountered in the ordinary attack of appendicitis. Occasionally, one will meet with cases where the painful spot will be found in the neighborhood of the liver, accompanied by a slight attack of indigestion, but which passes by unnoticed, being concealed

by the other digestive troubles which predominate and this, of course, renders the diagnosis still more difficult. Other than the symptoms already mentioned, there is little else to be noted. There is no spontaneous pain at McBurney's point, but an attentive examination, if the patient is thin, will reveal to the examining finger a little indurated mass, representing the appendix, and which by deep palpation, is somewhat sensitive. Less frequently does one find a mass in the right iliac region, so often detected in recurrent appendicitis of ordinary evolution. Occasionally, however, one will encounter a case where, during the progress of the other symptoms, a true inflammatory attack in the appendix will develop. In this case, the diagnosis is made easy and the other symptoms presented by the patient do not lead to an erroneous diagnosis. But, in most cases under discussion, during the periods, often of long duration, where the dyspepsia alone persists, the causative lesion may make itself evident by a number of indications which, although not apparent, will allow one to recognize them. I here refer to McBurney's painful point, when deep palpation is made over it, because the patient will not usually refer to it, as it gives rise to no spontaneous pain. At the most he may occasionally refer to an indefinite pain in the cecal region, which should lead to an attentive examination.

From what has been said there would seem to be nothing pathognomonic by which to distinguish the dyspepsia of appendicitis from other types of dyspepsia. One is dealing with an atonic dyspepsia with hypochlorhydria, which in no way differs from other types of this condition. One cannot ask diagnostic elements from these gastro-intestinal symptoms which they cannot give, and their only interest is in putting the medical man on the right track for diagnosis and, without belonging especially to the disease with which we are now concerned, some of them may by their physiognomy and arrangement give a clue.

In the first place, the habitual constipation should attract attention. Its manner of appearance which is occasionally quite sudden and its persistency in spite of the most varied medical treatments, are quite characteristic. The anorexia also has a certain peculiar and distinctive character. The distaste for certain food occasionally presents an elective character which should always be recalled, and particularly, the repugnance for red meat and sauces

is not without importance. But it is above all the *kind* of anorexia which is occasionally very characteristic. In point of fact, it is not a real loss of appetite that these patients complain of, they are hungry, but they do not take food because they well know that it will give rise to pain and other distressing symptoms during digestion. As has been pointed out, chemical analysis of the gastric contents does not seem to throw much light on the question.

All this would be insufficient for a diagnosis if, beside the digestive disturbances, the clinical examination did not offer other more characteristic evidences, which, when dealing with a suspicious type of dyspepsia, will allow us to affirm its appendicular origin. I here refer to the patient's history of his case, the detection of a mass in the right iliac fossa and the pain over McBurney's point. These signs are fundamental and always aid the diagnosis.

As to the indications given by the patient they should deal with either typical appendicular attacks or what may be called latent attacks. It is only by carefully sifting out the patient's antecedents that one will discover that the dyspeptic presented at the commencement, or during the development of his affection, one or more distinct attacks in the appendix. These patients, believing that the connection between the two affections is of no consequence, will usually omit referring to the iliac fossa, or, if attention is brought to this by questions, the physician oftentimes neglects to make a connection between the two.

These attacks, as I have said, do not always arise, but when they have occurred, they represent a symptom of very great importance, although I would insist that an *absolute* importance should not be given them. The dyspepsia may exist without attacks of appendicitis, and, nevertheless, be the result of either a latent or a frank appendicitis. On the other hand, if one or more attacks of appendicitis have been discovered in the history of the case, one must not conclude with certainty that the case is one of dyspeptic appendicitis, because any case of dyspepsia may develop an attack of appendicitis and recover completely. It is only by a minute examination and a careful consideration of all the symptoms present that one may finally realize the relation of the cause and effect which often exists between these two syndromes. In certain cases the search for the relationship between the two affections is very much

easier and here I refer to those instances where the acute attacks of appendicitis are distinct and frequent in occurrence, so that their influence on the digestive tract causes the patient to notice it himself. On the other hand, numerous are the cases where the causative lesion never gives rise to an acute attack, or if anything is noted, it is merely a latent condition in the appendix. These disguised appendicular attacks may cause an erroneous diagnosis instead of leading to the correct one if they are not looked for, or are ignored. Many are the patients who, for a long time, have suffered from repeated attacks of indigestion, enteritis, nephritic, or hepatic colic, who in reality were suffering from a latent appendicitis. Given these facts, the practitioner should always be suspicious when dealing with this condition of affairs, and he should recall that appendicitis may take on almost any disguise and, if there is any doubt as to the correct diagnosis, the latter affection should always be seriously considered.

All these facts should be carefully searched for in the medical past of the patient. True, they are not always of a rigorously decisive value, and, besides the restrictions already mentioned, it should be noted that certain patients have a tendency to exaggerate and reply too affirmatively to questions asked, while others, on the contrary, forget the pain which, on account of its slight intensity, gave rise to no disquietude. The able paper on the value of clinical histories published in the *Boston Medical and Surgical Journal*, April 9 and 16, 1908, by Dr. Maurice H. Richardson, is replete with sound advice in this respect. The same cannot be said of the two other signs which are both objective and palpable. Local tumefaction frequently exists, and I have found it in about 66 per cent. of these cases. A very attentive examination is most requisite and I believe that general anesthesia with ethyl chloride should be resorted to as it is rapid, has no after effect and the patient is completely relaxed for at least a minute or two. The seat of the tumefaction will be in the right iliac region in the neighborhood of the cecum and appendix. It is found as an elongated rounded cord, or like a more or less movable bit of ribbon, which represents a diseased appendix, sometimes accompanied by a slight induration of the walls of the cecum. In size it is never very considerable and it is only in the case of periappendicitis and epiploitis accompanying the initial

lesion that this symptom acquires the greatest development. In this case the tumefaction comprises, besides the appendix, numerous adhesions of the omentum which have caused retraction and are of a fibrous nature. These cases, however, are the exception and usually palpation will only make evident a little cord-like induration which rolls under the exploring finger. I would, however, point out that when this cord-like mass is found, a too absolute value must not be attributed to it, because other causes, particularly the terminal portion of the mesentery are quite capable of producing the same condition of affairs.

This examination brings us to the consideration of exquisite sensitiveness over McBurney's point. Usually, it is far from being acute, being a painful sensation and if carefully searched for will rarely be overlooked. The pain produced by the palpation may last for a few minutes, or even for a few hours after the examination, but, when once it has been elicited, I believe that it is an absolute indication that the appendix is involved and that in all probability one is dealing with the dyspeptic type of appendicitis.

In spite of these symptoms, errors in diagnosis are not always easy to avoid. The dyspeptic disturbances are sometimes so pronounced that all the attention of the practitioner is given to them. They may take on a gastric physiognomy or, on the other hand, it may be intestinal. Then gastritis or a dilatation of the stomach is suspected and the appendix is never thought of. As spontaneous pain in the iliac fossa is rarely complained of, the objective symptoms alone will allow one to reach a correct diagnosis.

The general condition of the patient not infrequently complicates the situation. The sub-icteric or muddy complexion of these patients, the anorexia, the loss of flesh, or the infectious complications, the melena or phlebitis, in a word, all these symptoms plead in favor of a gastric neoplasm and here again the history of the case and objective symptoms must be relied upon in order to prevent a diagnostic error. And many are the difficulties present. One may encounter, with this symptom-complex, a mass in the right iliac fossa and then one should consider, beside the dyspeptic type of appendicitis with plastic periappendicitis, tuberculous peritonitis of the ilio-cecal region and malignant tumors of this same region, so that the differential diagnosis of these various lesions must be attempted.

In the afore-mentioned affections, the same intestinal disturbances and the same general condition of the patient are encountered, although perhaps to a lesser degree. Intestinal hemorrhage, on the other hand, is more frequent, and if, into the bargain, the liver is enlarged and its surface irregular, if enlarged lymph-nodes can be detected in other regions of the body, the diagnosis of malignant disease must be seriously considered. For that matter these cases are not what can be termed common, and the treatment is the same. As to the question of localized tuberculous peritonitis, tuberculosis of the cecum or the appendix, a differential diagnosis is frequently impossible. The digestive disturbances and objective symptoms are frequently similar. It is only by the patient's antecedents and the coexistence of other tuberculous lesions that the true nature of the disease may be suspected. When the gastro-intestinal symptoms dominate a possible diagnostic error may be incurred inasmuch as that of typhoid fever may be made, especially if a painful spot may be found in the right iliac region. The diarrhea, the temperature-curve, rose spots, Widal's serodiagnosis and search for Eberth's organism in the blood will usually prevent error.

Another cause of error in the diagnosis which should never be lost sight of may occur from the fact that the painful spot is not located over the so-called McBurney's point. When it is found higher up, the diagnosis of dyspepsia resulting from a calculous cholecystitis is apt to be made. Generally, however, the history of biliary infection is different; the earthy color of the complexion, with attacks of icterus that sometimes occur may, however, lead one to an erroneous conclusion. The painful spots and radiation of the pain when occurring higher up than in cases of an appendix running towards the liver, may be of some diagnostic value, but even if a mistake is committed, the operative indications are practically the same in both cases. On the other hand, the painful spot may be found lower down than usual and, when one is dealing with a female, the differential diagnosis must be made between an appendicitis of the dyspeptic type and gastro-intestinal disturbances arising from an ovarian reflex. Here, the history is of the greatest importance, because, when the genital organs are involved, one can always elicit a history of pelvic lesions, a uterine infection, or a mass composed by the diseased adnexa is found by a bi-manual examination.

A gonorrheal or puerperal infection is so common that one should always be on one's guard and search for such infection in the patient's past. The difficulty of diagnosis is still more difficult if the right adnexa are alone involved. When the appendix is the seat of the trouble, the tumor will be found higher up, while bi-manual examination will give exact indications in cases of involvement of the tube or ovary. The fact should never be lost sight of that not infrequently the appendix may become adherent to a pus-tube and, in its turn, become secondarily involved in the septic process, but, as a matter of fact the operative indications are the same.

The tender spot in some cases may be found more externally than usual and the digestive disturbances are then considered as due to a nephroptosis. However, when one detects a tumor similar to the kidney in shape and movable, the diagnosis is easily made. Then, too, these two affections may not infrequently co-exist. Edebohl found that 60 per cent. of his cases presented nephroptosis with appendicitis, and he concludes that the symptoms attributed to the kidney in reality are dependent upon the appendix, a chronic appendicitis being the constant consequence of movable kidney. This hypothesis, to my mind, requires more study and I am as yet unwilling to accept this dictum. The more or less considerable diffusion of the painful spot may cause one to consider the question of muco-membranous colitis, and, in spite of what has been said to the contrary, I am of the opinion that colitis can occur during appendicitis and for that matter I have notes of several such cases.

There is little to say as to the treatment, but what is particularly striking is the absolute uselessness of medical measures. These patients are often submitted during many months to diet, irrigation of the stomach, seasons at various mineral water resorts, etc., only to find that their loss of flesh and cachexia continues. Operative interference alone will put an end to the patient's distressing condition and the results obtained are sufficient to back up this assertion. After the appendix has been removed the dyspepsia disappears, appetite returns and digestion takes place without any difficulty; the movements become regular and the nervous phenomena finally also disappear. In several instances where the patients have been treated for a muco-membranous colitis, this condition completely disappeared after the appendix was removed.

The condition of the patient is far from being a contra-indication to operative interference; however, if the cachexia is very pronounced, the operation may be deferred for a few weeks in order to improve the condition of affairs by an appropriate treatment. The operation may be said to be devoid of danger, because, generally speaking, in cases of the dyspeptic form of appendicitis, the lesions in the appendix are of a chronic inflammatory nature and the organ will usually be found free, unless in the past the patient has had one or more attacks of acute inflammatory phenomena in the organ, a condition which, as I have already pointed out, is occasionally met with.

DIAGNOSIS OF MULTIPLE SCLEROSIS

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Multiple sclerosis is a disease of the brain and spinal cord characterized by the production of islets of sclerosis scattered irregularly through the central nervous system. It is a disease of early life. The majority of cases begin before the twenty-fifth year. Its development is characterized by great irregularity. In some cases there are remissions of symptoms so complete as to give the impression that recovery is about to take place, and after months they recur and progress as before, to be followed possibly by other remissions. Some cases, on the contrary, go on rapidly to death, either by apoplectiform or epileptiform seizures. So irregular is the course and so bizarre are the symptoms, that a correct diagnosis can in some cases only be reached by an exclusion of all other cerebral or spinal diseases. The onset is slow. Headache, vertigo, rigidity, weakness, ataxia of the lower extremities, and tremor of the upper extremities. These tremors are not manifested when the parts are at rest but are strikingly developed if the patient attempts to pass a glassful of water to his lips. This tremor is later observed in the muscles of the head, neck and face. The speech is slow; syllabic, scanning; the knee-jerks exaggerated, and ankle clonus usually pres-

ent. The eye symptoms are nystagmus, developed by forced lateral movements; narrowing of the field of vision; paretic condition of the extrinsic eye muscles; incomplete optic atrophy, usually on the temporal side, never producing complete blindness; pupils usually equal and react to light and accommodation. Very rarely myosis; irregularly and disordered reflex to light and accommodation. Hysteria is the disease with which it is most frequently confounded. The differentiation must be made by the hysterical stigmata, by sensory disturbances, being much more conspicuous in hysteria, and by a careful study of the eye findings. In hysteria the optic nerve is normal; nystagmus developed by forced lateral movements, not severe in hysteria; the regular concentric contraction of the field of vision in hysteria does not inconvenience the patient, and is associated with conjunctival anesthesia.

DIAGNOSIS OF TABES AND PSEUDO-TABES

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Locomotor ataxia is one of the most dread diseases, and one who sees it in its most developed forms can well understand why it should be so. But yet cases of the disease move among men, attend to their duties, show few of the disease manifestations, and so may continue for nearly half a lifetime. These more favorable conditions are not rarely due to the patient having learned what is the best mode of living for himself; for a peaceful, wholesome life, without physical or mental strain, is doubtless the treatment that does most to retard the pathological process. This implies the knowledge of the presence of the disease at an early period, on the part of patient or physician.

The clinical history of tabes is now so well known, that it can be recognized before there has been much progress, at least so far as the development of symptoms is concerned. The prominent symptoms are lancinating pains, paresthesia, anesthesia, gastric, rectal,

laryngeal, and other crises, weakness of bladder and sexual organs, many eye symptoms, perforating ulcer of the foot, Charcot's joint disease and other trophic symptoms, as well as the muscular incoördination. While most commonly certain symptoms are first to appear—pains, paresthesia, weakness of the bladder and sexual functions, or paralysis of the external ocular muscles—experience has taught us that almost any symptom of the disease may be the first to obtrude itself upon the consciousness of the patient. For that reason the careful physician who meets a case of blindness, or beginning blindness, from atrophy of the optic nerve without apparent cause, or of paralysis of external muscles of the eye, or of perforating ulcer of the foot, or unusual joint disease, or inexplicable attacks of gastric pains and vomiting, or other attacks that may be likened to tabetic crises, or of unaccountable paralysis of the bladder, will at once think of locomotor ataxia, and seek for other symptoms and signs of the disease. Occasionally, even though he be on the right track, his search may prove fruitless. For instance years may elapse after the first appearance of primary atrophy of the optic nerve, before other symptoms of tabes are found. But usually he will not look in vain. When the patient first presents himself, close inquiry may reveal that other symptoms have already been manifested, whether the common ones—pains, paresthesiæ, weak bladder—or the more unusual ones, so that by correlating them a probable diagnosis can be made; or there may be added the presence of physical signs making the diagnosis practically certain. These physical signs, so valuable in diagnosis, are the conditions of the pupils and the tendon reflexes. Pupillary symptoms are very important. Often the first to be observed is inequality of the pupils. This occurs at times in normal individuals, so that the symptom means the more to us—the same is true of some of the other signs—if we happen to know how the pupils have been in former years. They may not only be unequal, but one or both of them may be somewhat irregular in outline. The most important of the pupillary symptoms is the Argyll-Robertson pupil, pupils which do not respond to light but become smaller during the act of accommodation. We may at the same time have spinal myosis, very narrow pupils, but not necessarily so. More frequently we find pupils unequal in size, one of them, perhaps, somewhat large.

The valuable tendon phenomena are the absence of knee jerks and Achilles tendon reflexes. In rare instances the knee jerks are absent in health, but this occurs so rarely that the symptom loses none of its significance as a diagnostic test. But the knee jerk is often very difficult to obtain in normal individuals, and, for this reason, if its absence is to have its full significance, the physician must thoroughly understand how to elicit it. When not otherwise obtained the physician should try the Jendrassik method, or method of reinforcement. While the examiner is striking the tendon, the patient makes some strong muscular effort, as in trying to pull the clasped hands apart. It is well, too, for the patient to sit on a table with bare knees and legs dangling; and the physician should strike the tendon on every part before he finally pronounces the knee jerk absent. The Achilles tendon reflex is examined while the patient rests comfortably on his knees, the physician tapping the tendo Achillis; or the examiner holds the foot with one hand—the knee and hip being flexed the while—and taps upon the tendo Achillis with the other.

To return now to the diagnosis of tabes. When a patient comes with a single symptom, say gastric crises, or optic atrophy, or perforating ulcer of the foot, we must look for other tabetic symptoms. We may learn that he once had double vision for a while, or that there are occasionally indications of weak bladder, or that he has at times had pains, now almost forgotten, or that he has had other symptoms, found more or less frequently with tabes. Then we must look for the physical signs just described, for it is rare after symptoms of tabes have appeared, that one does not find changes in the pupils or tendon reflexes or both. Sometimes one may see the beginning of these signs, and their further development; for instance, that one knee jerk is less marked than the other, and gradually gets less until it is finally lost, and then the other knee jerk goes through the same process. The same order of events may be observed in the pupils. Such manifestations have, possibly, more diagnostic significance than the fully developed sign.

Multiple neuritis is a disease whose recognition is of far more vital importance than is that of tabes. This is because of its etiological relationships. Very commonly the cause of multiple neuritis is alcohol or a metallic poison, such as lead or arsenic. It is com-

mon, too, that the cause, when unrecognized, continues to be active, making the patient's condition progressively worse, whereas the natural course of the disease is to recovery. It has been no rare occurrence for me to be called into consultation where both the disease, and the cause of it, were unrecognized, and where things were going from bad to worse. No doubt that is a common experience of neurologists. The recognition of the disease is so important here, because it naturally leads one to seek for the cause, which might not, otherwise, have been thought of.

The common case of multiple neuritis presents one of the most recognizable of diseases, at least to those who know it. The paralysis of the four extremities, most marked at their distal extremities, anesthesia corresponding in intensity and distribution to the motor paralysis, tenderness over the paralyzed muscles and nerves, as well as loss of tendon reflexes and altered electrical reactions, make the question of diagnosis exceedingly simple. But not all cases are so clearly outlined. There is a class of cases in which the above symptoms are illy defined, to which the term pseudo-tabes has been applied. In these instances the motor manifestations appear to be ataxia rather than paralysis, and this, together with the loss of knee jerks, gives the resemblance to locomotor ataxia, whence the name. And mistakes in diagnosis are not uncommon. Physicians have come to me in trepidation of spirit, fearing that they had that dread disease, tabes, when their ailment was really multiple neuritis, or as we will term it in these instances, pseudo-tabes. There are cases of tabes where the first symptom, at least the first symptom the patient notes, is an ataxic gait, and as it is possible that no other symptom is found, there is the further possibility, that one cannot determine whether the disease be tabes or pseudo-tabes, though time will answer that question. But such cases must be exceedingly rare. Usually the diagnosis can be definitely made. In case of tabes it is rare that close inquiry will not bring out other symptoms, paresthesia, pains perhaps almost forgotten, weakness of bladder and sexual functions, or the like, and examination will usually reveal some pupillary symptoms as well as alterations in the tendon reflexes. In the case of pseudo-tabes, apart from the fact of the acuteness of symptoms, which might be misleading, a careful study of the case will usually reveal that the impaired gait is due mainly

to paresis of some of the muscles, rather than muscular incoördination, and electrical tests may show some of the alterations of the reactions characteristic of peripheral paralysis. With like degrees of ataxic gait in the tabetic and pseudo-tabetic, the unlike distribution by anesthesia, and the decided increase of the ataxia when walking in the dark, as well as presence of the Romberg symptom, in the former, will usually clearly distinguish the cases. Then there are far more likely to be symptoms on the part of the upper extremities in pseudo-tabes, than in the early period of tabes. One may find, too, a cause of disease, as alcohol, lead, or arsenic, helping to clear up the diagnosis. One should never forget that it is because it is so important to find and remove the cause, that one should try never to overlook a case of multiple neuritis.

A CASE OF MUSCULAR DYSTROPHY FOLLOWING ACUTE POLIOMYELITIS IN INFANCY

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Muscular atrophy may be a symptom of so many different conditions, the pathology of which are widely variable, that questions of etiology and diagnosis are often difficult to decide. A primary division is now recognized, separating the spinal atrophies from the dystrophies or idiopathic muscular atrophies. That poliomyelitis should be a factor in the later appearance of a spinal atrophy is reasonable to expect, but its influence upon the later development of a dystrophy does not coincide with our present conception of that disease.

Numerous cases of the spinal type of atrophy have been reported, occurring in patients years after an attack of acute poliomyelitis.

The case here reported bears much resemblance to a spinal type

of atrophy, but should probably be classed as one of muscular dystrophy. The history is as follows:

C. L., male, 42 years of age, born in Denmark, married, but has had no children. He is a rug weaver by occupation. Family history is good so far as can be determined. He does not remember ever having had any serious illness, but the left leg and foot present a deformity, which, from its appearance, must have resulted from an attack of acute poliomyelitis in infancy. There is no venereal history; he uses alcohol and tobacco habitually but moderately.

On examination, the left leg is found to be $1\frac{1}{2}$ inches shorter than the right from knee to heel, and much atrophied. The only muscles showing any development are those of the anterior tibial group. The foot is in the position of pes cavus, with slight valgus. The only voluntary movements of the leg below the knee consist of dorsal flexion of the ankle and a slight dorsal movement of the toes. Comparative measurements of the circumferences of the legs are as follows:

Calf.		Thigh just above knee.		Thigh, upper part.	
Right.	Left.	Right.	Left.	Right.	Left.
14 $\frac{1}{4}$ in.	9 in.	12 $\frac{1}{4}$ in.	11 $\frac{1}{4}$ in.	17 in.	17 in.

Reflexes of legs are present and normal with the exceptions of the left Achilles jerk and the left plantar reflex, which are absent. The right leg shows no evidence of atrophy nor weakness. In the left, the greatest atrophy is in the calf muscles which show no power of contraction on voluntary effort nor in reflex action, and are in a condition of flaccidity. This condition of the left leg is strong evidence of an infantile poliomyelitis, even in the absence of a definite history.



Fig. 1. Left foot and leg, showing atrophy and deformity resulting from acute anterior poliomyelitis in childhood.

Examination of the upper extremities shows marked atrophy in both hands. The thenar and hypothenar eminences are almost flattened out; the atrophy of the intrinsic muscles has caused depression between the metacarpal bones. The thumb of each hand is nearly useless and is held on the same plane as the rest of the hand, presenting good examples of the so-called "ape hand." The grip in each hand is fair, but the motions of the fingers are limited to flexion and extension, no lateral movements being possible. The right hand is slightly more involved than

the left. The atrophy extends only to the lower part of the forearms; the arms and shoulders show no atrophy nor weakness. The biceps and triceps reflexes of both sides are present and normal.



Fig. 3. Patient attempting to close eyes and smiling. Lids open one-quarter inch. Eyes rotated upward, showing only sclera. Facial muscles weak.

slowly separate again, and even during sleep they remain in this position. The extra-ocular movements and the pupillary reactions are normal. The tongue and palate show no evidence of atrophy, but the patient states that the voice has been growing slightly weaker for the past five years, and that he sometimes chokes when swallowing liquids. His articulation is somewhat indistinct and slightly suggestive of the speech of bulbar palsy.

Sensation to all forms of stimuli is normal in all parts of the body; there are no fibrillary nor fascicular contractions of muscles to be seen. Reactions to the faradic electrical current are present in all muscles which can be moved voluntarily. There are no reactions of degeneration.

The patient does not know when the atrophy in hands and face began but states that it has been present for many years, and no further history of its onset can be obtained. An oculist was the first to discover the inability to close the eyelids about ten years ago when examining the patient's eyes for glasses.

The face presents a peculiar mask-like appearance, and the movements are very much limited. In smiling the lips are separated and the angles of the mouth drawn slightly outward and upward, but the eyes and the rest of the face do not participate. Puckering the lips as in whistling cannot be performed. Efforts to close the eyes result in only a partial closure of the lids, leaving a fissure between them of about one-quarter of an inch, and the eyeballs at the same time turn upward so that only the sclera is visible. When the eyelids are closed passively, they



Fig. 2. Showing atrophy of muscles in hands.

He has been under my observation for nearly three years, during which time there has been no perceptible change in his condition. He works regularly at his trade of rug weaving and walks without the aid of a brace or a cane, using a specially constructed shoe.

We have, therefore, a case presenting every evidence of having had acute poliomyelitis with the later development of a chronic atrophy of the hands and face, with the additional symptoms of slight bulbar involvement. Clinically this case could hardly be classed as one of progressive spinal muscular atrophy, because of the absence of fibrillary tremors and reactions of degeneration in the muscles, and of its extremely slow progression. Nevertheless, it resembles the spinal atrophies in its distal involvement, the scapulo-humeral regions escaping entirely. This distribution is exceedingly rare in muscular dystrophies.

The etiology of muscular dystrophy is very obscure. Heredity seems to be an important factor as several children of the same family are frequently affected. The disease is more common in males than in females, and occurs more often among the working classes than others, these facts favoring the theory that trauma and exertion are factors in its causation. Syphilis, infectious diseases, conditions of the mother during pregnancy, etc., do not appear to have any influence. Predisposition in the form of congenital lack of vitality in the muscular system plus the direct action of exertion, or in the older subjects over-exertion and trauma, are the most important elements so far known.

The differential diagnosis of the different well-known types is generally easy, though they sometimes merge. The pseudo hypertrophic form generally begins soon after the child learns to walk or in the first few years of life. Erb's juvenile, or the scapulo-humeral form, occurs later, generally during adolescence, and less frequently during adult life. The Landouzy-Dejerine or facio-scapulo-humeral form is practically the juvenile form, plus the facial involvement. The Charcot-Marie-Tooth, or peroneal form, more frequently affects adults.

From the chronic muscular atrophies due to spinal disease, such as chronic anterior poliomyelitis, progressive spinal muscular atrophy and amyotrophic lateral sclerosis, the diagnosis of dystrophy depends upon the absence of fibrillary tremors and reactions of degeneration, the earlier appearance, the heredity, and the first involvement of the proximal rather than the distal portions of the limbs.

Syringomyelia is easily differentiated by its sensory changes; hypertrophic pachymeningitis by its severe pains; multiple neuritis by its more acute course and by the pains and tenderness and reaction of degeneration in muscles showing atrophy; and arthritic

muscular atrophy by the presence of the primary arthritis or its sequelæ.

The pathology consists almost entirely of changes in the muscles, swelling, atrophy and fatty degeneration of muscle fibres with increase in the number of their nuclei. The transverse striations are preserved until late in the disease. The findings in the spinal cord and peripheral nerves have generally been negative, although various changes in the anterior horn cells have been noted by different investigators.

Gordon Holmes¹ recently reported a case of myopathy clinically and pathologically, and reviewed the literature of pathological findings in the cord and nerve roots in fourteen cases of various types of dystrophy. His conclusions from his own case and those cited were that changes are frequently but not always present in the cord, and consist principally of a disappearance of some of the large cells of the anterior horns, and atrophy and shrinkage of others. Accompanying these changes are a corresponding atrophy and diminution in number of the fibres of the anterior spinal roots. But since these changes in cord and nerves correspond closely to those occasionally found after the amputation of a limb, we must admit the probability of their being secondary and not primary in their relation to the muscular diseases.

The existence in my case of a previous acute poliomyelitis is suggestive from the standpoint of pathogenesis, particularly so, since the recent investigations of Harbitz and Scheel² and others practically establish the infective nature of acute poliomyelitis and its extensive involvement, as shown by the round cell infiltrations of the meninges of brain and cord, as well as inflammatory changes in the substance of the cord, medulla and even in the brain itself.

Potts³ reported a case of progressive spinal muscular atrophy and cited thirty-seven cases in the literature of various forms of spinal atrophy occurring late after acute poliomyelitis, but none of these presented the appearance of a dystrophy.

It is quite conceivable that acute poliomyelitis should leave changes in structure which would diminish the resisting power of the nerve elements which might succumb to stress in later life; but no possible causal relationship is evident between poliomyelitis and muscular dystrophy as the latter is now understood.

The course is slow but progressive with occasional intermissions, and may last for decades. The prognosis is correspondingly bad, although the disease is not of itself fatal; the patients generally dying of intercurrent affections such as tuberculosis, pneumonia, etc., to which their forced inactivity renders them easy prey. Treatment is entirely hygienic and orthopedic, braces and tenotomies being occasionally required for weakness and contractures respectively.

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THE DIAGNOSIS OF MASTOID DISEASE WITHOUT THE PRESENCE OF THE CLASSICAL SYMPTOMS

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The diagnosis of mastoid disease is so closely associated with the indications for operation that it is difficult to separate one from the other. However, the factors prompting an operation are entirely dependent upon symptoms, be they many or few. When the symptoms are pronounced there is no difficulty in arriving at a conclusion. There are three cardinal symptoms that are regarded as positive evidence of a destructive process in the mastoid structures, whether this is of an acute or chronic nature.

First, a discharge that does not decrease.

Second, swelling of the upper posterior portion of the external auditory canal, with the base of the swelling at the tympanal margin.

Third, persistent pain for two or three days or more on deep or moderately deep pressure with the thumb over the mastoid at a point on the level of the roof of the external auditory canal just a little posterior to the attachment of the auricle.

Besides these symptoms we frequently encounter others, as elevation of temperature, headache, loss of appetite, pain on bringing the lower jaw against the upper with any degree of force, furred tongue, etc. In infants and young children we cannot rely upon tenderness as a symptom, for tenderness even if apparent, especially upon superficial pressure, may be due to a mild periostitis. Furthermore, it is not always an easy task to determine whether the child's cries are due or not to manipulations on our part. In young children, swelling of the posterior portion of the external auditory canal—in the presence of purulent otitis—occurs very readily, owing to incomplete ossification of the annulus tympanicus. This permits the soft parts to become soon infiltrated. In infants up to the second year of life thermometric changes play an important rôle as an evidence of suppuration of the mastoid. However, temperature change or not, swelling of the mastoid region together with a purulent discharge from the auditory canal—if an enlarged or suppurating gland may be excluded—are sufficient evidence for the presence of mastoiditis. In older subjects we rarely meet with swelling over the mastoid in connection with purulent otitis as the patients are generally operated upon early in the disease. On the other hand, we have cases of suppuration of the middle ear, accompanied by marked and extensive destruction of the mastoid, where we have few or no symptoms indicating the existence of such destructive process. Some of these patients experience little or no pain, and when it does occur it is usually at the onset of the affection, and of short duration. The rectal temperature does not rise more than one or two degrees, at times it may be normal. Tenderness as a symptom is often uncertain; it may sometimes be elicited by very deep and firm pressure over the region of the antrum or the site of the emissary vein. The patient may sleep well, appetite may be fairly good, and he is often able to attend to his business. He is annoyed only by a discharge from his ear and a feeling of fulness in the head. A patient who was under my observation complained of deafness but in one ear, the right one. The drum-head looked white but lustreless, and on palpation with a probe, felt doughy; he had no pain, either spontaneous or induced. There was no rise in temperature or anything else to disturb him. The drum-head was incised,

allowing pure creamy pus to escape. There was no swelling of the canal wall. The opening in the drum closed in a few days, but on reopening showed the presence of free pus. The opening closed once more, requiring a repetition of the incision. The patient never had had a discharging ear, and felt so well, that it was difficult to advise anything more radical to be done, although it was manifest there was a collection of pus somewhere else than in his drum-cavity. Finally, when slight tenderness developed over the mastoid antrum, the patient was advised to have the mastoid opened, to which he consented. The operation revealed a mastoid that was practically disintegrated from suppuration.

The case just cited is atypical in its symptomatology, and still it was as pronounced and far advanced an instance of mastoiditis as I have ever encountered.

There are certain conditions, both anatomical and constitutional, which favor the production of the atypical course of mastoiditis. Where there are large cells with thin walls, allowing the products of inflammation to spread without much resistance, we will not have any symptoms of retention. In the presence of general diseases, especially tuberculosis and diabetes, there is observed a pronounced disintegration of the bony structures. In the so-called tubercular type of mastoiditis we may not have positive evidence of local tuberculosis, but the patients undoubtedly belong to the tubercular class. In the diabetic the presence of increased amounts of sugar in the blood diminishes the resistance of the organism against pyogenic bacteria, so that invasion of the cells of the mastoid occurs without making itself strikingly manifest. Where there is a flow of pus with a swelling of the upper posterior wall of the external auditory canal in the diabetic, and especially if the opening of the drum has a tendency to contract, there is sufficient indication for a diagnosis of the presence of pus in the mastoid antrum and adjoining cells. It is necessary to call attention to what has been said of the influence of the streptococcus capsulatus as to its insidious activity in causing suppuration of the mastoid without giving rise to any very marked symptoms except persistent otorrhea.

An early diagnosis in these atypical cases of mastoiditis is of course very important. So long as the destructive process is limited to the mastoid, the patient is comparatively safe, but once the adjoin-

ing structures or the system become invaded the seriousness of the case becomes soon evident.

The following points should be considered in the diagnosis of mastoiditis: Age, appearance, expression, the tongue, temperature, urine, blood (differential leucocyte count and cultures), the presence of other infections, as typhoid, scarlet, diphtheria, measles, grippe, malaria, etc., the character of the discharge from the ear, and its bacterial nature, together with such local conditions as swelling in the canal, the location of the opening in the tympanic membrane, pain, both spontaneous or induced. These diagnostic points, in their entirety, are hardly ever met with in a given case, and there are some instances of mastoiditis in which we are compelled to base our diagnosis on but a few symptoms which in themselves are not pronounced.

A CONTRIBUTION TO THE PROGNOSIS OF PROSTATIC OBSTRUCTION AFTER OPERATION

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In operations on the prostatic gland we have two principal objects in view. First the *relief* of the immediate condition and second the *permanent* cure of the patient. While many valuable papers have been written on the subject of prostatic hypertrophy and the immediate operative results, too few have carefully analyzed end results. The reasons for this are many, but until this is done we shall in my opinion, have failed to direct the search light to the most important part of the subject. The tabulation of immediate post-operative results while of some interest are usually of little value at the present time. A surgeon with experience in this field is supposed to be able to remove a prostate and send the patient from the table alive.

In looking over statistics in this branch of surgery one is apt to be skeptical of the glowing figures which state a large number of prostatectomies without a death.

ANALYSIS OF OPERATIVE RESULTS OF FIFTEEN CASES OF PROSTATIC OBSTRUCTION

No.	Age	Referer and Place of Operation	Past History	Present Condition	Date of Operation	Operation	Post-operative Treatment	Pathology	Result of Operation	General Remarks after Three Months from Operation
63	72	Dr. G. F. Morris, Post-Grad. Hospital.	No venereal record. Diabetes. Large amount of sugar. Considerable loss in weight. Urinates very frequently.	Complete retention for one month. Prostate by rectum large, smooth and rather hard. High up.	August, 1907	Supra-public, by two-stage method. Ten days' interval. Anesthetist, Denton.	After first operation good. After final operation in a considerable shock and persistent hiccoughs.	Fibroma. Difficult to enucleate. Prolonged operation to one-half hour.	Death at end of a week from general exhaustion aggravated by diabetic condition. Drs. Manges and Strauss in consultation.	In this case the cystoscope was used a month before operation. It was followed by complete retention. The operation was prolonged unduly owing to difficulty of enucleation. This was a mistake, and I am convinced that an operation of this kind should never last more than twenty minutes. If we cannot finish in this time, it is better to complete the enucleation later on.
64	82	Dr. F. H. Wiggin, Post-Grad. Hospital.	Has had pain on urination for years; complete retention for a year. Six stones removed from bladder by Dr. Wiggin, June, 1907.	In constant pain; severe cystitis. Prostate very hard. Grating in prostate region in passage of sounds. Gland seems infiltrated with stones.	September, 1907	Perineal route. Prostate filled with small stones. One small stone in bladder (loose).	Considerable delay in convalescence. Stone crushed, then freedom from pain and gain in strength.	Phosphatic conditions. Prostate not examined. A small piece only removed. Collar variety.	Comfortable. Urinates freely. No pain. Empties bladder. A little dribbling at times.	I was sorry after operation that I had not chosen the supra-public route. I could have then have reached the bladder stone, which I could not reach without too much delay by perineal wound. The patient had been opened supra-publically for stones (6) previously; so I chose perineal route.
65	65	Service at City Hospital.	Has had difficulty in urinating for years. Operated on by perineal route two years ago and prostate removed.	Passes urine every ten minutes and dribbles most of the time. 120-180 cc. residual. Prostate small and hard; irregular.	October, 1907	Perineal route. Quick operation.	Quick regain of strength. Wound closed in eight days.	Adenoma.	Comfortable. No pain. Empties bladder.	Satisfactory in every way.
66	64	Post-Grad. Hospital, Dr. Wilcox, Dr. E. Joel.	For ten years has been suffering great pain night and day. Bottini operation unsuccessful.	Pain very severe; cystitis severe. Residual, 75 cc. Prostate not large, high up by rectal touch.	October, 1907	Supra-public. One stage. Anesthetist, Furniss.	Slow convalescence. Epididymitis and abscess followed.	Adenoma.	Finally has recovered and is comfortable. Empties bladder.	Cystoscope used in this case before operation; was followed by epididymitis and abscess. It proved of no value as in case 63; in fact, was injurious.
67	72	Dr. Hopke, Post-Grad. Hospital.	Gonorrhea fifteen years ago. Getting up at night some times for some years; loss in force of stream.	Prostate rather large and smooth. Residual, 240 cc.	November, 1907	Supra-public. Two stages. First local anesthesia. Four weeks' interval.	After final operation ten days. Epididymitis and abscess followed.	Fibro-adenoma.	In good condition. Empties bladder. No pain.	Perfectly satisfactory.
68	57	City Hospital.	Two years' frequent urination; some dribbling; overflow at times.	90 cc. residual urine. Prostate low down, slightly enlarged, firm and smooth.	November, 1907	Supra-public. One stage.	In bed for a week. Rapid recovery.	Fibroma.	Recovery.	Satisfactory result.

66	61	Post-Grad. Hospital.	Difficulty in urination for several years.	180-240 cc. residual. Prostate large, high up to rectal touch, smooth and movable.	November, 1907	Supra-public. One stage.	Up in a week. Passed all urine by urethra in two and one-half weeks.	Adenoma.	Recovery. Empty bladder.	Satisfactory result.
70	70	City Hospital.	Occasional attacks of retention relieved by catheter for several years.	240-300 cc. residual. Prostate low down, rather hard, but regular in outline.	November, 1907	Perineal. One stage.	Up in three days. Passed all urine by urethra in eight days.	Adenoma.	Recovery.	Satisfactory result.
71	69	Post-Grad. Hospital.	Ten years' frequent and painful urination. Pain in end of penis very severe.	In great pain, much run down. Prostate large and high up; smooth; suspect stone.	January, 1908	Supra-public. One stage.	Found large phosphatic stone in bladder. Slow convalescence.	Phosphatic deposits in prostate. Fibroma.	Recovery. No pain after passing several small stones. Urine clear.	Satisfactory result. Gained 40 pounds. It seemed possible that the convalescence was prolonged by infection of wound at time of operation.
72	61	Dr. A. W. Ferris.	Six months' difficulty in urination, has to strain. No venereal history.	60 cc. residual, early stage. Prostate slightly enlarged, low down; smooth, movable.	January, 1908	Perineal. Time, eight minutes. Anesthetist, Funniss.	Rapid recovery. Out of bed on fifth day.	Adenoma.	Recovery. Bladder control good after some delay.	Satisfactory result.
73	58	Dr. McAdam, Post-Grad. Hospital. Dr. Smith, Meriden, Conn.	About three years' with several attacks of retention following use of alcohol.	Complete retention; cannot introduce catheter. Much hemorrhage. Prostate very large, soft and smooth.	February, 1908	Supra-public. First local anesthesia. Two stages. Ten days' interval.	Rapid recovery. Passed urine normally in four weeks.	Not recorded.	Recovery. Is in excellent condition after an attack of epididymitis.	Satisfactory result.
74	60	Dr. F. A. Carpenter, Dr. Terwilliger, Barton, N.Y. Post-Grad. Hospital.	No urination without catheter for four months. Prostatic abscess; evacuated before I saw him. Prostate removed?	Catheter life. Prostate not large, but irregular, and hard as result of inflammation.	February, 1908	Supra-public. Two stages, 1st, local anesthesia, 2d, in two weeks, general anesthesia.	Slow recovery. Finally opened perineal wound and drained.	Small amount of fibrous tissue removed, of the collar variety.	In very good condition at end of five months. Urinates naturally, he writes.	In good condition. Has not regained his strength, but reports himself improving and perfectly satisfied.
75	56	Dr. W. G. Eckstein, Post-Grad.	For some weeks complete retention.	Large prostate; bladder full of urine and dribbling away (overflow).	March, 1908	Supra-public. One stage.	Did well for six days.	Not examined.	Died on the sixth day very suddenly as result of embolus, after getting out of bed in night.	Lodging house patient. Should have been given more preliminary building-up treatment; also a two-stage operation. Lillenthal's method would have been wiser.
76	63	Dr. Eggleston, Dr. Gant's Sanitarium.	Six months' difficulty in urination; no venereal history. A bladder "attack" four years ago.	Complete retention for three weeks. Smooth, soft; prostate high up by rectal palpation.	April, 1908	Supra-public. One stage. Difficult operation.	Rapid recovery. Upon fourth day.	Adenoma.	Home in three and a half weeks, and in excellent condition; voiding urine normally.	Satisfactory results. Rather prolonged weakness followed, but now in good condition. Small amount of residual urine, but getting less. Dr. Eggleston writes from Meriden, Conn., that condition is excellent.
77	54	Dr. Arlitz, Hoboken, N.J. Post-Grad. Hospital.	Some difficulty in urinating for several years. No venereal history.	Two days' sudden and complete retention. In continuation of collapse; emergency. Prostate very large.	April, 1908	Supra-public. Two stages, 1st, local anesthesia; 2d, in a week.	Rapid recovery, and up in three days after each operation.	Adenoma.	Home and in good condition at end of three and a half weeks. Voiding normally; no residual.	Satisfactory result.

What we want to learn is more about each individual case at time of operation, and did he finally regain good urinary control. Also, was he again able to do his share in the world's work. Many patients would better have died at time of operation than have been condemned to constant distress as an after result.

It seems to me before we can gain much of value from statistics it should be stated that the patient's wound has healed and he has been out and about for at least three months from time of operation.

That it is difficult to follow up these patients, especially in large cities where they are of the poorer class, I freely grant. Also in different environments we would probably find considerable difference in end results. In the large cities the poor enter the hospitals in reduced condition, and in consequence do not do as well as those who are better off. This point was clearly shown in a recent paper by L. Bolton Bangs.

However, in a fairly large number of cases we should be able to draw much more satisfactory conclusions from a study of the patient after he has resumed his normal life than if he has simply lived through an operation and been discharged from the hospital as cured.

The natural tendency is for the surgeon to lay stress on the good results and minimize the poor ones. We really, however, learn more from our failures than from our successes and so in the following table I have taken the last fifteen cases in my series of operations up to three months ago, and analyzed them as impartially as I knew how.

Under the heading of remarks I have stated candidly what my belief is about the result in each case.

In no instance has the patient spoken of loss of sexual power, one mentioned the subject, and he thought he was about the same as before the operation.

In the foregoing table suggested in part by an excellent paper by A. T. Cabot, two of the patients out of fifteen died. In the 77 cases I have operated on for prostatic obstruction, I have lost 5, which makes the mortality about 7 per cent. for my series to April, 1908. However, as I have already said, the urinary result is often, in reports, ignored, whereas it is of paramount importance.

General Retrospects

THE VALUE OF INTERSTITIAL GINGIVITIS (PYORRHEA ALVEOLARIS) IN THE RECOGNITION OF SYSTEMIC DISEASE (A DIGEST OF THE IMPORTANT RECENT LITERATURE)

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LITERATURE

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- McKEE, G. M.: Indicanuria of practical value to the dentist. (Dental Brief, Feb., 1908.)

Considerable has been written about the various types of gingivitis, especially about so-called pyorrhea alveolaris or interstitial gingivitis. Most of the literature which we possess has appeared in dental journals but little attention has been paid to these lesions by medical writers. The reasons for this are first that the dentist is mostly consulted for treatment and secondly the relation between gingivitis and certain systemic pathologic states has not been duly recognized until lately and this only in a vague fashion. The etiology of interstitial gingivitis is not thoroughly understood, some writers ascribing it to local causes entirely, others pronouncing it a sequel of systemic disturbances. If it were of local origin, produced by lack of oral hygiene alone, careful local medication ought to terminate it. This, however, is not the case and there is no practitioner, dental or medical, who can claim that he can treat interstitial gingivitis successfully in the majority of cases. It can be compared to atrophic rhinitis about whose etiology Charles Richardson writes: "There is no disease in rhinology in which speculation has been so rampant in the consideration of its etiological factors as in atrophic rhinitis."

These theories have all been made along scientific lines, advanced by numerous authors after painstaking care and investigation; but, unfortunately, their conclusions are very divergent. No doubt this marked divergence of theories is largely due to the fact that no one has been able to trace a given case from the absolutely normal condition into the development of and through the successive stages of the disease. We are at the present time apparently as far from the universal acceptance of a tenable theory as to the etiology of atrophic rhinitis as in the beginning of the investigation."

This is also true of interstitial gingivitis; however we are approaching the time when gingivitis is better understood.

Gingivitis is frequently associated with certain systemic diseases as typhoid fever, tuberculosis, etc. One of the first who made a careful study of interstitial gingivitis in its relation to systemic disease was *Talbot* of Chicago, who admitting local causes as productive of gingivitis (as accumulation of tartar about the necks of the teeth, decayed teeth producing hypertrophy of the gums, unfinished fillings, gold crowns, etc., also writes: "Autointoxication due to faulty metabolism is the great cause of interstitial gingivitis resulting in pyorrhea alveolaris; it means self-poisoning. Every disease of the human body produces autointoxication. Marked autointoxication also occurs as a result of intestinal indigestion. Milder forms of autointoxications occur as a result of a want of harmony in the bodily functions. The skin on the ends of the fingers will peel when the cold weather appears, because skin, liver, kidneys and bowels do not adjust themselves quickly to prevent accumulation of effete matter in the blood. Soldiers going from a temperate climate to Cuba and the Philippines, with change of food had autointoxication and interstitial gingivitis."

Fossume in his paper speaks of the presence of indican in the urine as associated with the breaking down of living proteids, as in the formation of abscesses, in ulcerating cancerous growths, etc. "Those," he writes, "who have studied this subject carefully, say that where tissues were breaking down and pus is forming, indican will result. Indican is present in 80 per cent. of abscess treated in dispensaries. But the examination of the urine after the pus has disappeared has shown indican still present. The conclusion therefore must be that the abscesses resulted from some abnormal condition which produced indican, thus lowering the tissue vitality to a point when the abscess developed. Cases of abundant pus, due to excessive infective wounds, did not show indican with any regularity, whereas in carbuncles or abscesses which seemed to develop without any exciting cause more potent than the resident bacteria of the skin, indican was present in the above percentage of cases.

"Pyorrhea alveolaris seems to come under the same class and the indican is found in such cases almost uniformly. The deduction is

that indican is the product of intestinal fermentation, due probably to the bacillus coli communis acting on peptones."

Talbot found indicanuria present in almost all patients suffering from so-called pyorrhea alveolaris, also an increased blood pressure.

Goadley, who has been working on the subject of pyorrhea for the last ten years, has lately taken that disease as the subject of the Erasmus Wilson Lecture delivered before the Royal College of Surgeons of England. He has come to the conclusion that a frequent cause of the disease is that article of diet, so universally used and so carefully safeguarded—namely milk.

After briefly sketching the history of the disease and remarking on its prevalence among lower animals, *Goadley* called attention to the fact that many diseases have been regarded as predisposing causes, such as diabetes, rickets, enteric fever, etc., all associated with the loss of muscular tone and inflammation of the oral mucous membrane. He next referred to the insidious onslaught of the complaint and pointed out that bleeding of the gums on using the toothbrush was generally an early symptom, and is, in any case, always a pathological sign. He then called attention to the wide distribution of the disease, which is usually endemic, but may appear in an epidemic form in families or in communities, as amongst the American troops in the Cuban campaign. It also seems fairly common among the natives of India and Africa.

After dealing with the local manifestations he then touched upon the more serious side, viz., the general infection of the body, often with curious remote effects. He showed how the antrum and other accessory sinuses, the eye and possibly the ear may become infected, how bacteria invaded the stomach and digestive tract, and how the blood might be directly affected by the toxins absorbed from the gums. He reminded his hearers that pus from the gum produced a local abscess when inoculated into animals. A number of these animals died, some recovered. The results were not uniform or regular, confirming the researches of *Miller* that the disease was not due to a specific organism which could be isolated.

When *Wright* published his discourse relating to the opsonins, he showed that when a vaccine is prepared from the patient's own staphylococci, a beneficial result is often obtained. Following up this idea, *Goadley* prepared vaccine accordingly from a number of patients, and has found that the use of these, in conjunction with local treatment, has been productive of excellent results.

Goadley's arguments in favor of milk infection are as follows: It is known that the staphylococci are often present in milk; pyorrhea is a frequent sequel to infectious disease, during which the patient has been for some time upon a milk diet; it frequently occurs in several members of the same family, suggesting a common origin.

Another factor is the close similarity of ulcerative stomatitis in children and pyorrhea in adults. The former does not occur in adults nor the latter in children as a rule, and Goadley suggests that they are the same disease under different aspects arising from a common origin.

Goadley must be congratulated upon his laborious efforts to elucidate a problem which has been an enigma to the medical and dental professions; still there are points which invite criticism. It hardly seems probable that the etiological factors of pyorrhea alveolaris should be found in milk, for were it so the disease itself, or "its modified form of stomatitis ulcerosa," would be more frequent in children. Whereas the fact remains that pyorrhea alveolaris is mostly prevalent among individuals who do not partake of much milk but live on a diet rich in heavy meats with little vegetables and scanty milk supply. Ulcerative stomatitis as a rule occurs in children who are poorly nourished and partake of milk of poor quality.

McKee, in his paper, reviews the causes of indicanuria and describes a simple test for its detection. Having examined the urine of a large number of cases of so-called pyorrhea, he concludes that it is of utmost importance to the specialist treating oral disease to examine the urine to determine the presence of intestinal fermentation, which is an etiological factor of interstitial gingivitis or so-called pyorrhea alveolaris.

The reviewer's experience has led him to believe that gingivitis (interstitial) is *always* associated with systemic disturbances. Frequently the gingival condition, without any other symptom, objective or subjective, will enable one to make a diagnosis of otherwise latent systemic disorders.

Gingivitis is most frequently associated with constipation, producing intestinal toxicosis. The reviewer has found that gingivitis (interstitial) is most often found in Hebrews (who are known to eat good and plenty) and people who partake of large amounts of rich foods, people who lead a sedentary life, who indulge in too little exercise and who drink very little water. It is a recognized surgical fact that appendicitis is a frequent occurrence among such people.

On the other hand, gingivitis is sometimes associated with diarrhea, and the writer has found, if such is the case, the diarrhea is produced by toxicosis emanating from the septic buccal condition. These cases are often accompanied by a rise of temperature and other symptoms of sapremia.

Gingivitis is also found in syphilis, tuberculosis, in diabetic as well as in gouty states, and can always be traced to abnormal circulatory conditions (either the blood or the blood vessels, or both)

which are induced by suboxidation or the retention of excrementitious matters. Gingivitis (interstitial) therefore becomes of distinct diagnostic value, and if this fact be recognized in its full significance, we will not only have so many cases of unrelieved, ill-treated pyorrhea, but systemic disease will be recognized in its early stages and much suffering will be prevented. The work of Talbot and Goadley cannot be estimated too highly, as they were the first who studied this buccal lesion extra orally, and even if their theories may not all be acceptable they are pioneers in the development of a field which has lain bare and is of the greatest importance to the physician.

A CRITICAL RÉSUMÉ OF THE NEWER METHODS IN THE DIAGNOSIS OF THE FUNCTIONS OF THE KIDNEY

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The past decade has wrought many changes in our knowledge of both the function and diseases of the kidney. Old idols have been destroyed and new ones set up to meet after an ephemeral existence the same fate. Each has served its purpose, however, and though meeting with an untimely end, advanced through the demonstration of their false premises or deductions, to a better knowledge and clearer understanding of the subject.

The time is past when heat, nitric acid, Fehling's solution, specific gravity, and litmus paper, with perhaps a test for urea and a more or less careful microscopic examination for casts should constitute the sum total of our efforts to determine the nature of the functions and lesions of the kidney. Crude and purile as they now seem in the light of present detailed chemico-physical studies of the carefully separated urines, they stand out as great mile stones on the highway of medical progress, even though so conservative a clinician as Cabot would topple them, not only from the high pinnacle they once occupied, but mercilessly expurgate them from the memory of man.

Hasty or skeptical criticism of customary methods is soon seized upon by the unthinking as a satisfactory excuse for the neglect of all. It is far better that the physician determine from the mixed urines, the presence or absence of albumen, sugar, casts, lessened

specific gravity or increased concentration, the nitrogen and urea content, than to assume all analyses save by elaborate and complicated instrumental and laboratory methods are a delusion and a snare and neglect those which are in his possession. Therefore, while appreciating the necessity of enforcing the knowledge of the inadequacy of our usual methods, let us still more strongly enforce the necessity of continued and careful examination by the old, while disseminating the knowledge of the later and more accurate ones.

The literature on functional diagnosis of the kidney has grown immensely, particularly in the last few years. Its extent may be gauged, when in a recent work by Kapsammer, no less than 1827 references are given. Albarran, Achard, Debove and Castaigne have published voluminous works on the subject.

Of these newly applied methods, many are still entirely *sub judice*. The greatest diversity of opinion naturally exists as to their value. Lauded by their sponsors as an efficient means of solving the important and vexed problem of kidney insufficiency; their critics condemn them absolutely or damn them with faint praise.

The value of cryoscopy, color tests, phloridzin, electrical conductivity are championed and opposed with equal fervor by various investigators. In so voluminous a literature it would be hard to separate the wheat from the chaf; therefore in reviewing the various methods of testing the function of the kidney, only those whose value has been more or less proven will be discussed. For a more exhaustive study the reader is referred to the original authorities mentioned in the text.

In the study of the sufficiency of the kidneys, but little information of value can be gained by the examination of the mixed urines, as passed *per urethram* or obtained by bladder catheterization. We can merely determine that one or both kidneys are working efficiently or otherwise. To obtain definite knowledge, it is necessary to obtain the urine collected separately and simultaneously from each kidney. This of necessity can only be effected by intravesical instrumentation, either by the use of the catheterizing cystoscope or one of the various forms of segregators. It would, therefore, seem appropriate at this time to consider the instruments and technic employed in obtaining the urine; before proceeding to the chemico-physical study of the same.

CYSTOSCOPES AND URETERAL CATHETERIZATION

The strenuous efforts in recent years for accuracy and perfection of diagnosis has lead to the invention of many instruments for the examination of the internal parts of the body. After the ophthalmoscope, chiefest of these has been the cystoscope perfected by Nitze and Leiter. By the cystoscope we have been enabled not only to clear up the nature of the various vesical lesions, but by its use in its im-

proved form to catheterize the ureters and elucidate many problems in the functions and diseases of the kidneys.

The student in cystoscopy at the outset of his studies will be bewildered by the many and various types of instruments. The peculiar value or benefit of each being most strongly insisted on by the designer or dealer. A moment's consideration will, however, reveal that they are in the main merely minor variations of the same general principle, modified to suit individual taste. Practically there are only two general forms; that designed on the lines of Nitze (European type) and that of Tilden Brown (American type).

The essential parts of all cystoscopes are the lamp or source of illumination and the telescope or visual apparatus. Briefly, the cystoscope of Nitze consists of a small incandescent lamp placed at the internal or vesical end of a straight tube which it joins at an obtuse angle. The tube contains the telescope (a series of lenses) and at the bladder end on the upper surface a small glass window by means of which an incandescence of the lamp in a closed cavity like the bladder through the telescope, a clear view of the interior may be obtained. This, the original form, has been modified in several ways, by the introduction of channels in the tube, allowing the in and out flow of the bladder medium or the passage of small catheters thus allowing of catheterization of the ureters, or the passage of cauteries, snares or forceps, for the performance of intra-vesical operations under control of the eye.

In all instruments constructed on the Nitze principle the fixed relation of telescope and lamp has practically been retained. In the type now to be considered a very material change has been made.

The Tilden Brown or American type of cystoscope involves the separation of lamp and telescope and the separation of the sheath or tube into two parts. In this type of instrument the lamp is attached to a canula constituting the sheath at an obtuse angle. Through this canula the telescope is introduced as are also the various other appliances. It is in this division or separation of telescope and sheath that the fundamental variation consists and fairly admits of the classification of two types of instruments, the European and American.

Having presented in a brief and very broad manner the differences in construction, we will consider certain details and contrast them.

The Lamp. A prime essential to successful cystoscopy is a good reliable light. As originally constructed the lamps were of high resistance, consequently when used became rapidly so hot as to be capable of severely scorching the vesical lining. This lamp, however, gives the maximum quantity of light and is the one usually supplied with the European instrument. American ingenuity has

produced, however, the so-called cold lamp, one of low resistance and creating but little heat; but also accompanied with a diminution of the quantity of light emitted. It is questionable if the greater safety compensates for the loss in efficiency. There is also a difference in the mounting of the lamps. The foreign lamps are usually surrounded by a metallic hood exposing the lamp only on the side toward the window, while in the American type it is freely exposed, being attached merely by the base or surrounded by a hoop allowing illumination in all directions.

In relation to the lamp the source of power must be considered. We want not only a reliable source of electricity but a steady one, one which does not cause loss and annoyance in burned out lamps. We have found that the most satisfactory source of power is either a storage battery or, from its portability, a good dry battery.

Types of Cystoscopes. In contrasting the two types, the fundamental principle of separation of the shaft must be considered. It is unquestionable that the American with the large canula left on withdrawal of the optical apparatus, possesses certain advantages in allowing rapid exchange of bladder medium, over the smaller channels of the European type (although this principle has been practically adopted in some of the more recent foreign cystoscopes). The decision must of necessity rest upon the view afforded of the interior of the bladder and the ease with which the ureteral orifices may be catheterized. As originally designed, the American was a direct view telescope. (This principle of a direct view catheterizing telescope was not new, as Brenner in 1887 designed his direct view instrument based on the Nitze lines). The field afforded by the direct telescope is not as large as that of the indirect. The manipulation is also somewhat different being effected by pointing, moving the instrument as a whole in obtaining a view of the different parts of the bladder, while in the indirect view a rotation of the shaft is the chief maneuver necessary. There can be no question however but that the best and most comprehensive view is afforded by the indirect telescope. There is one serious objection to many of the foreign catheterizing cystoscopes; the crossing of the catheters on withdrawal of the instrument. This is avoided in the direct instrument, and in certain foreign cystoscopes, by the practical adoption of the American principle of separation of shaft and telescope. Regarding facility of ureteral catheterization, the indirect view with its larger field allows the ureteral orifices to be picked up more readily, although it is probable that once seen the direct view will allow of more easy introduction. One point that must be most strongly insisted upon is that the instrument is so constructed as to permit of simultaneous ureteral catheterization.

Segregators. This type of instrument devised by Harris and

improved by Downes, Cathelin and Luys has not found the favor that its merit of seeming simplicity affords. The instruments of Harris and Downes were of utility and have served a useful purpose but are now out of date. The improved instruments of Cathelin and particularly that of Luys are still on trial. Luys' instrument is certainly a valuable addition to our armamentarium and deserves consideration. Compared with its associate method of cystoscopy, it is quite as painful. More painful than ureteral catheterization with withdrawal of the cystoscope and its application requires a bladder capable of containing an amount of fluid sufficient for cystoscopy. Its use is more fatiguing to both surgeon and patient. Great care and attention are also necessary to maintain an effective dam and complete separation of the urines. Its chief merits are its simplicity in use, as neither battery or local or general anesthesia are required. The avoidance of the danger of ureteral infection is also a point in its favor.

As an instrument of precision and delicacy it is not comparable with the cystoscope. Furthermore there is the loss of knowledge of the vesical condition which is afforded by the visual examination. This in itself is a matter of serious consideration. In certain cases it is a valuable adjunct to ureteral catheterization in settling the question of a possible reflex anuria. We have noticed in several cases that an apparently dry kidney on cystoscopy or catheterization, would secrete more or less freely on segregation. Barringer (*American Jour. Med. Sciences*, March, 1907) gives a good résumé of the use of this instrument in fourteen cases with comparative cystoscopic findings. Luys (*Exploration de l'appareil urinaire*, Paris, 1907) exploits its use with much ardor.

Taking all factors into consideration we believe that ureteral catheterization should be the method of election in all suitable cases. Segregation being reserved for exceptional cases or where cystoscopy is not consented to.

Technic. Certain practical points in connection with cystoscopy will be briefly considered. In the male the prone position with a small sand bag under the hips, as recommended by Hurry Fenwick, is the most convenient for general use and least painful to the patient, though somewhat fatiguing to the surgeon. In this position with the indirect view cystoscope, we can at once pick up the ureters and examine the base of the bladder. As the majority of lesions are found in this region, this position should be favored. For ureteral catheterization or in women the lithotomy position is necessary as allowing of greater freedom of manipulation. It adds much to the comfort of the patient if the knee crutch is used, care being taken not to flex the thighs too acutely on the body. In fact the feet should be much above the level of the body.

Bladder Medium. A clear medium is essential to successful cystoscopy. Hurry Fenwick claims great advantages for the natural secretion of the urine when sufficiently clear. Other cystoscopists evacuate the bladder and introduce a mild antiseptic solution. When clear the urine is the one most suitable and should be used. But this opportunity is limited; for it is generally necessary to induce an artificial polyuria to obtain urine of the required transparency. This is undesirable where functional diagnosis is the objective. The bladder must also be capable of containing at least 100 cc. (The use of the air-cystoscope has not been considered.) While its use might be indicated in exceptional cases, its practical application except in the Pawlick-Kelly or Luys type of instrument is most unsatisfactory.

With a small contracted bladder cystoscopy may be impossible and the use of the segregator enforced or the examination abandoned unless time permitting, the bladder by treatment and training brought to a condition where it will retain the requisite amount. An excess of fluid is also detrimental but readily controlled by permitting its escape through the catheter channels.

Cystoscopy in functional diagnosis of the kidney. Hurry Fenwick (*Obscure Diseases of the Kidney*, 1903; *Clinical Cystoscopy*, 1904) lays much stress on the condition of the ureteral meatus and ureteral efflux as an indication of the functional activity or of disease in the kidney or ureter. In this he is followed by many English surgeons. Freyer (*Surgical Diseases of the Urinary Organs*, 1908) and Symonds in his recent Lettsomian Lectures (*Lancet*, March 21-28, 1908) accepts his deductions as most valuable. While there is no doubt that in many instances the condition of the ureteral orifices will afford valuable hints as to the condition of the upper urinary tract, it has lost much of its importance by the improvement of the catheterizing cystoscope and is now to be regarded as only a preliminary step to its performance.

The technic is fully described in the recent works of Fenwick, Casper, Nitze, Luys, Albarran and Kapsammer. Also in a most excellent article by Kolisher and Schmidt (*Jour. A. M. A.*, June 4, 1904).

In connection with the subject of ureteral catheterization and renal diagnosis the possibility of supernumerary ureters and anatomical variations of the kidney must not be overlooked. This was ably discussed by Huntingdon in the Herter Lectures, 1906-7.

FUNCTIONAL DIAGNOSIS OF THE KIDNEY

The methods of investigating the functional activity of the kidneys has assumed particularly great importance since the invasion of surgery into the domain of renal disease. Formerly content to prove the existence of the second kidney, the fatal termination of

a number of cases where nephrectomy had been performed and the only more or less competent organ removed, forced the surgeon to seek and devise new and more thorough means of determining the condition of each kidney separately.

The question of the secretion and excretion of the kidney has been investigated from many points of view. By the physiologist, the pathologist, the urological surgeon and the chemist. The physiologist and the chemist have in the main developed their knowledge of the functions of the kidney on the results of the quantitative and qualitative examination of the products of both kidneys and not on the relation of their functional activity to the catabolism of the body as a whole, or the relative sufficiency of one kidney to the other, or the ability of one organ to compensate for insufficiency in the other.

Therefore the propositions before us in concrete forms are:

1. Can we determine the efficiency of the kidney in relation to catabolism in general?
2. Can we determine the functional efficiency of each kidney separately?
3. Can we determine the ability of one kidney to compensate for the insufficiency of the other?

These propositions are the essential basis for a diagnostic and prognostic study of the renal functions.

To the first proposition we can only return a qualified negative—practically no. For here we must consider the ability of the kidneys to properly dispose of the water and products of catabolism brought to them by the blood. That the determination of the renal sufficiency is not at the present time practically possible may be illustrated by the oft used nitrogen and urea argument. The sum total of which is, that in ignorance of the total amount of nitrogen introduced into the body, the amount excreted in the urine possesses no real value. For it is not the amount excreted that determines the efficiency of the renal function—but the amount retained in the body. The same argument holds true of the other products of catabolism. Elaborate studies have been made of the nitrogen, chlorides and other substances contained in the food that a standard of elimination through the kidneys might, if possible, be determined. Though this is a possibility in an individual case, it would not be applicable as a general formula. Furthermore, as Heinrich Stern so often reminds us, the constituents of the urine, especially those of nitrogenous character, do not represent the intake of the previous twenty-four hours, but from a much longer period prior to that time. Nor is the nitrogen eliminated by the urine alone, but also by other excretions of the body.

Therefore, the conclusion *a posteriori* must be, that in ignorance of the intake, analyses of the output possess no real value, and that the chemistry of the mixed urines does not afford us information

as to the functional activity of the kidneys in relation to catabolism in general.

To the second proposition, again a qualified negative must be returned, with this distinction, however, based on the assumption of certain facts verified by urological experience: that the kidneys normally secrete and excrete practically synchronously and that in a moderately long period of time, an hour for instance, the composition of the separated urines would be practically the same. With this assumption we are enabled by determining the physico-chemical characters of the separated urines to arrive at a fairly definite conclusion as to the amount of work performed by each kidney in a given time. Not in relation to the general bodily efficiency be it understood—but to each other.

To the third proposition the same general reservation must be made. It is well substantiated that one kidney is competent to perform the work of both. Also that the remaining parenchyma of a diseased organ may by increase of function compensate for the destruction of other parts. Where compensation is fully effected by this increase of function in the diseased kidney its detection would be difficult by functional tests. The compensation is rarely so perfect in practice, however, as to offer much difficulty. We are therefore able to state that, with the means now at our command, we are able to determine with a degree of accuracy sufficient for practical use the relative capacity and degree of compensation of one kidney for insufficiency in the other.

Summary. Although we do not possess means of determining the total functional capacity of the kidneys, we are enabled by the methods about to be described to estimate their relative functional capacity with a fair and practical degree of accuracy.

PHYSICAL TESTS

Cryoscopy of the Blood. (Graphically represented as δ). The estimation of the molecular concentration of a fluid by the determination of its freezing point in relation to the freezing point of distilled water is a well-known physical principle. The greater the molecular concentration the higher the freezing point or *vice versa*. The application of this principle introduced in medicine by Koranyi as a means of determining the renal efficiency by the molecular concentration of the blood has received much support as a method of great value. It has been investigated by Kümmel of Hamburg (*Surg. Gyn. & Obst.*, Jan., 1907) in nearly 1,000 cases, many of which were confirmed by operation or post mortem examination. Cryoscopy of the human blood has developed that the freezing point may be defined with accuracy and constancy sufficient for practical clinical use at -0.56 to -0.57 C. In functional or organic disease of the kidney where elimination is de-

fective, the molecular concentration of the blood is increased and the freezing point is higher. Kümmel states that where the elimination is so defective that the molecular concentration is so great as to give a point as high as -0.60 C. operation is contra-indicated. Had continued investigation sustained the uniform value of cryoscopy under all conditions, owing to its simplicity its value in medicine would be unmeasurable. But as Koranyi proves a higher value than -0.58 C. may be found in circulatory disturbances of the kidney and with abdominal tumors, both of the kidney or other organs. Nephrolithiasis (renal colic) may induce a result as high as $\delta = -0.76$ C. in compensated unilateral disease during the attack, which in the interval exhibited a value of $\delta = -0.57$ C. There are also other factors which may impair the δ value. Retention of water in the system as in anasarca and ascites. This retention of fluid even in the presence of a lessened renal permeability and an absolute increase of solid molecules may be sufficient for a time at least to preserve a value of $\delta = -0.57$ C. In certain pathological conditions in which there is a lessened intake of food or restriction of diet or by a change of catabolism and an alteration in the character of the end products may suffice even in case of renal insufficiency to prevent an increased molecular concentration. These conditions all strongly militate against the acceptance of cryoscopy as an absolute indication of lessened renal permeability.

Cryoscopy of the Urine. (Graphically represented as Δ .) The main function of the kidney is eliminative, excretory. Through the blood are brought to it the products of catabolism. Through the variations of osmotic pressure in the glomeruli and renal tubules, the secretion of urine with its increased molecular concentration is effected. This molecular concentration is much greater than that of the blood varying from 1.20 to 2.30 C. below that of distilled water (Koranyi). The values according to Lindemann ranging in health from -0.90 to -2.70 C. Where insufficiency exists the readings are usually less than -1.0 C. Divided opinion exists as to the value of this method. Some experimenters regard it as of little worth and on a par with the specific gravity, and have devised a formula for converting the latter into Δ value by multiplying the last two figures of the specific gravity by 0.075. Others claim that in contracted kidney the Δ value is but slightly changed, if at all, while in the parenchymatous (chronic) forms there is a lessened Δ value. This is regarded as pathognomic for these forms of disease by Roth-Schulz, and Kövesi, when the Δ value is taken in connection with an artificially induced polyuria. In the parenchymatous forms the power to produce a dilute urine being diminished, while in the interstitial it is affected to but a slight degree. If these pure forms of nephritis existed as a rule and not

as the exception; these observations would be invaluable, but as pathological examination have established the vast preponderance of the mixed forms, their diagnostic value is reduced in proportion.

The relation of δ to Δ . Kümmel, as the results of his observations in a very large series of cases lays great stress on this and considers the variation of the freezing point in comparative relation as possessing both diagnostic and prognostic value.

As a comparative method in the examination of the separated urines cryoscopy affords us an accurate and simple means of determining their relative efficiency.

Electrical Conductivity. This method of examination is borrowed from the physical laboratory. It is the reciprocal of the resistance which a certain quantity of fluid, between two platinum electrodes of given size and given distance apart, offers to the passage of an electric current of known strength. Its application in medicine is still in a purely experimental stage. It is doubtful if it will prove sufficiently practical to be of use to the urologist.

TESTS OF THE ELIMINATION OR PERMEABILITY TO CERTAIN KNOWN SUBSTANCES

Methylene blue (Achard and Castaigne). This test is best performed by the intramuscular injection of 1 cc. of a 1.20 watery solution. It is supposed to test the epithelial filtration. The dye is first eliminated as a colorless chromogen (detected by boiling with acetic acid) and then by the appearance of the color in the urine. In normal cases or where there is sufficient normal parenchyma to eliminate the dye it appears in the urine in from fifteen to thirty minutes. Reaching its maximum in three to four hours. Elimination is normally completed in from thirty-five to sixty hours. The chromogen being the last to disappear. Its delayed appearance after an hour or more has been assumed to indicate disease in the kidney and prolonged elimination to also indicate a lesion "with diminution of excretory surface" (Achard). In Widal's case it appeared only at the end of five hours and lasted but two hours. So that there was not only delayed elimination, but destruction of the dye in the body. Herter, while admitting that delay means disease, agrees that some nephritics show periods of normal output. He denies that in any case there is a shortened period of excretion. In some cases the dye is destroyed in the body; never appearing in the urine. (Emerson.)

(The dye has also been extensively used in cystoscopy as a means of testing the patency of the ureters.)

The conflicting factors in the use of this test are so many that while it possesses a comparative value, especially in the separated urines, it is not trustworthy when used alone.

Indigo Carmine. The same comments may be applied to this dye as to methylene blue. It is used with the same intent and purpose.

Salicylic Acid. In the form of salicylate of soda and by intramuscular injection it has been employed as a colorimetric test. Its excretion is supposed to be through the glomeruli and governed by physical laws alone. Comparatively few cases of its use have been reported and we are unable to estimate its value.

TESTS OF THE CHEMICAL ACTIVITY OF THE KIDNEY

(The formation of new substances from those artificially introduced.)

Benzoic Acid. This is one of the oldest functional tests. The introduction of benzoic acid and its conversion into hippuric acid was studied by Jarsfield and Stockvis in 1879. Achard and Castaigne, about eight years ago, have inquired into the subject and conclude that the methods of determining the amount of hippuric acid are not sufficiently exact to be trustworthy. A still graver question exists as to whether other organs in addition to the kidneys do not participate in the formation of the acid.

Phloridzin. The use of this substance to replace benzoic acid was proposed by Achard. The test is based on the generally accepted theory that the glycosuria induced by the injection of phloridzin is due to the activity of the renal cells, and that a diminished or absent glycosuria indicates renal disease. The subcutaneous injection of 1 cc. of a 1 to 200 solution is made. The bladder emptied at intervals and sugar tested for by a copper solution. In normal persons sugar is present in from thirty to sixty minutes. Elimination lasts from two to four hours. The quantity of sugar eliminated varies from gm. 0.50 to 2.50 of glucose. In kidney disease the sugar is as a rule below gm. 0.50 or there may be none at all. Anomalies in the elimination do not always indicate renal disease (organic) but more or less functional disturbance. The subject has been thoroughly investigated by Casper and Richter in the light of comparative examinations of the separated urines. It does not permit of the determination of the separate forms of nephritis where disease is present. Kapsammer (Nieren-diagnostik, 1907) regards the time period of first appearance of elimination as of importance. If as late as forty minutes in the kidney which is not to be removed he considers operation contra-indicated, as that organ will not be able to compensate sufficiently for the loss of the other. Pertinent to this is the opinion of Rovsing that the diseased kidney may reflexly inhibit the sound one so as to apparently render it functionally incompetent. The sound or normal kidney acquiring full power on removal of the diseased one.

Beer (Jour. A. M. A., June 13, 1908), describes his investigations in seven cases (nephrolithiasis, tuberculosis, pyonephrosis, ureteral calculus and closed hydronephrosis) in which the second kidney was apparently functionally deficient; in four of which, however, on examination after operation on its diseased fellow, its reaction in time limit was found to be normal.

CONCLUSIONS

Having reviewed the various methods of functional diagnosis of the kidney, we are forced to conclude that in the present state of our knowledge the various tests are but of limited value. Less so to the internist than to the surgeon. To the surgeon by their use particularly in the separated urines, information of more value may be gained, but even then the knowledge acquired is only comparative, not absolute. They are steps in advance, however, and their judicious employment and continued study in this line of investigation will no doubt in time lead to the development of simpler and more accurate methods.

The study of metabolism and the excretion of its "end products" is as yet in its infancy, and though to-day we are in the dark—the light may come with the morrow.

Progress of Diagnosis and Prognosis

GENERAL METHODS OF EXAMINATION—SYSTEMIC AFFECTIONS—DISORDERS OF GENERAL METABOLISM—INFECTIOUS DISEASES

Volumetric Determination of Albumin by Acid Phospho-Tungstic—
I. TSUCHIYA, *Zentralblatt f. innere Medizin*, 1908. No. 24. (Second communication).

The author found that a 1% alcoholic solution of acid phospho-tungstic suffices to precipitate the entire albumin (below 7 pro mille) from the urine, and that the weaker solution gives more exact results than the 1.5% solution originally devised by him. The formula of the new test-solution is as follows: acid phospho-tungstic 1.0, acid hydrochlor. pur. 5.0, alcohol (96%) 100.0. The author uses now a special tube for his test which is better adapted for it than the Esbach tube. In this special tube the proportion of the urine to the reagent is 9:8. Traces of albumin may be qualitatively determined by employing equal parts of urine and reagent. If the amount of reagent used is much less than that of the urine, normal urinary constituents will be thrown down. Before applying the test, the urine should be filtered and its specific gravity reduced to from 1.006 to 1.008. If the urinary albumin exceeds 6 pro mille the urine should be diluted with water. The tube containing the mixture should be inverted from 10 to 15 times. After 24 hours the pro mille contents of albumin, even if but very small amounts are present, may be read off. WESTERN.

A New Chemical Method for the Recognition of Blood—DELÉARDE and BENOIT, *Gazette des Hôpitaux*, 1908, No. 67, June 13.

The following reagent is suggested: phenolphthaleine 2.0, potassium anhydr. 20.0, distilled water 100.0, zinc powder 10.0. The components are mixed, the reagent must be colorless. After filtration it must be well preserved from the air. For the purpose of blood detection 1 cc. of the reagent and 2 or 3 drops of oxygenated water are added to 2 cc. of the suspected liquid. The temperature of the mixture should not be raised. If blood be present, even if but in mere traces, the entire liquid immediately assumes a more or less pronounced red coloration. The sensibility of this reaction exceeds that of the spectroscope. With a specimen of blood kept for twenty years in the laboratory for forensic medicine at Lille, the authors received a positive reaction by means of this test. MILL.

Hyperglycemia in Febrile Conditions—A. HOLLINGER, *Deutsches Archiv f. klin. Med.*, 1908, Nos. 3 and 4.

Hyperglycemia is always demonstrable in febrile states. It comes and disappears with the fever. As a rule, no sugar can be detected in the urine. The quantity of sugar contained in the blood does not depend upon the intensity of the fever. With our present knowledge we cannot decide whether hyperglycemia and fever are coördinated phenomena, or whether they are interdependent.

MILL.

Eosinophilia in Echinococcus Disease—ROSSELLO, *Gazz. degli ospedali*, 1908, No. 63.

A diagnostic as well as prognostic significance is attached to the blood eosinophilia which is observed in echinococcus disease. The author had occasion to study the eosinophilia in 39 cases of echinococcus disease. Its intensity varied between 2 and 8%. It disappears at once after operation, and slowly vanishes when a cyst decays on account of suppuration, injection or bile irruption. If the eosinophile reaction continues after the operative extirpation of the cyst there is very likely another cyst remaining in the body.

ZIMMER.

The Oxydase-Reaction in Gonorrheal Pus—WINKLER, *Fol. hæmatologica*, V, No. 1.

The oxydase-reaction, which consists in the production of closely planted dark-blue granulations occupying the entire plasma of pus cells, which are subjected to the influence of alphanaphthol and dimethyl-paraphenylendiamin, may be utilized for the separation of the positively reacting polynuclear leucocytes from the non-reacting epithelial cells and mononuclear leucocytes. The behavior of the two types of cellular elements to the reaction points to their functional dissimilarity. The gonococci do not give this reaction.

RICHARD.

Report of Fifty Cases Tested by the Calmette Reaction for Tuberculosis—C. GRAEF, *Med. Rec.*, May 9, 1908.

The author reaches the following conclusions: (1) The test seems to be fairly reliable; (2) in some advanced cases no reaction will occur; (3) some allowance should be made for possible faults in the tuberculin as furnished at present.

REILLY.

The Calmette Ocular Reaction to Tuberculin—H. C. PARKER, *Jour. A. M. A.*, June 27, 1908.

The following conclusions are offered: (1) The Calmette ocular tuberculin test is of as great diagnostic importance as any

other single test. (2) A positive reaction is indicative of a tuberculous focus somewhere in the body. (3) The test is uncertain in patients under two years of age, in whom the cutaneous test of von Pirquet is most certain. (4) The test fails in advanced cases of tuberculosis but there is little need of it here for diagnostic purposes. (5) The initial instillation should be preferably under 1% strength, in order that severe inflammatory conditions may not follow its use. (6) If necessary to make the second and stronger test the instillation should be made in the eye not previously used. (7) The consensus of opinion seems to be against using the test in an eye not wholly normal. (8) After-complications have occurred from the use of the test, but these have entirely cleared up in a varying length of time. These conditions are not so frequent when the initial test is made with a solution under 1% in strength. (9) Recent investigations have shown a greater number of ophthalmic affections due to tuberculosis than formerly supposed, and in the Calmette reaction we have a simple means of differential diagnosis which should be thoroughly tried. (10) The ocular reaction is especially valuable for ascertaining the tuberculous nature of cases of phlyctenular keratitis and conjunctivitis, episcleritis and scleritis, chronic iritis and iridocyclitis, interstitial keratitis, and chorioiditis. (11) A 1% solution of Koch's "old" tuberculin is nearly as good as the Calmette solution for diagnostic purposes.

RICHARD.

The Eye and the Ophthalmo-Reaction—P. SCHULTZ-ZEHDEN, *Therapeutische Monatshefte*, April, 1908.

Tuberculin in 1% solution as employed for the conjunctival reaction is well born by almost every eye. Among the 150 cases of the author no permanent injury to the eyes was recorded. But two patients were temporarily injured by the ophthalmo-reaction. Half of the examined patients were affected with an eye disease, and even these had no aggravation of their local condition after the instillation. Two cases with pronounced conjunctival manifestations after instillation were not under treatment for an eye affection. In a case of not completely cured conjunctivitis eczematosa some phlyctenar elevations, disappearing within a few days, were produced. In all other instances of eye disease the manifestations of the ophthalmo-reaction were mild, and the instillation neither caused a recurrence of the old process nor did it give occasion to a new injury.

ZIMMER.

The Conjunctival Reaction in the Diagnosis of Surgical Tuberculosis—KRAEMER, *v. Brunssche Beiträge z. klin. Chir.* Vol. 57, No. 3.

The ophthalmo-tuberculin diagnostic test should not be em-

ployed in patients exhibiting extreme general weakness or conjunctival changes. In 58 positively tuberculous cases the reaction was positive in 54 instances. In 37 non-tuberculous individuals negative results were observed in 36 cases. In 116 surgical cases the reaction proved of decided value in 14 instances, but it led to a wrong diagnosis in one case.

ZIMMER.

A New Cutaneous Tuberculin Reaction for Diagnostic Purposes—

LIGNIÈRES, *Comptes rend. de l'acad. des sciences* T. CXLV, No. 18.

Instead of scarifying the author shaves a portion of the skin and rubs very concentrated tuberculin into the irritated area. An edema which soon hardens develops in none other than tuberculous animals. It is followed by suppurating vesicles which dry up and form scales. An induration may persist for months at the place of incision.

RICHARD.

The Puncture Reaction after Injection of Tuberculin—F. HAMBERGER,

Wiener klin. Wochenschr. 1908, No. 12.

The reaction at the place of puncture after injection of 1 mg. or less of tuberculin is of specific significance in the tuberculous. The puncture reaction is positive when the reaction is plainly noticeable for at least four or five days, and it is the most sensitive of all the known tuberculin reactions.

RICHARD.

Comparative Value of the Ophthalmic-Reaction and the Tuberculin Ointment Reaction—H. HEINEMANN, *Münchener med. Wochenschr.* 1908,

No. 11.

In the non-suspect the conjunctival test gave 16% positive results, the ointment test 17% positive reactions. The results of both methods also correspond when employed in the tuberculous.

RICHARD.

The Ophthalmic-Reaction in Children—H. AUDEOUD, *Revue méd. de la Suisse rom.* XXVII, No. 10.

The test was applied to thirty-one children ranging in age from eight months to fifteen years. In thirteen tubercular children the reaction was positive in twelve instances and negative in one instance (curretted tuberculosis of the cheek on the road to recovery). Of three suspects but one exhibited conjunctivitis. Fifteen non-tuberculous showed no reaction. The manifestations commenced between five and forty-eight hours after the instillation and continued from two to seven days (usually nineteen to twenty-four hours, or two to three days). A slight elevation of temperature ensued in the tuberculous.

RICHARD.

Chronic Albuminurias in Childhood—L. LANGSTEIN, *Therapeutische Monatshefte*, March, 1908.

An albuminuria may be considered as innocent when the observation, which has been continued for an entire year, proves the following: (a) that the night urine is always free from albumin; (b) that there exist fluctuations of the contents of albumin in the day urine (the absolute degree of albumin excretion is of no significance); (c) that the greater portion of the albumin is precipitable by acetic acid in the cold. The albumin test is performed in the following manner: the urine is placed in two test tubes to the same height and a few drops of moderately diluted acetic acid is added to each tube. After shaking the contents of the two tubes for a few minutes some distilled water is added to each tube. To the contents of one tube a few drops of a weak solution of potassium ferro-cyanide is added. The smaller the difference in the turbidity of the two tubes the greater is the probability of the existence of a genuine orthotic albuminuria. The positive diagnosis demands measurement of the blood pressure and examination of the fundus of the eye. An innocent albuminuria is not accompanied by increase of blood pressure, hypertrophy of the left ventricle or accentuation of the second aortic sound. The prognosis of uncomplicated orthostatic albuminuria is absolutely favorable, that of chronic nephritis in childhood, however, is very dubious.

ZIMMER.

Röntgen Diagnosis of Barlow's Disease—KLOTZ, *Monatsschr. f. Kinderheilkunde*, 1908, April.

The early diagnosis of Barlow's disease is of great importance for its treatment. In former years the disease was generally not recognized before quite pronounced hemorrhages of periosteum and gums had ensued. We are to-day able to diagnose the incipient stages of the affection in many instances. Anorexia and sensitiveness of the extremities, for which there is no apparent cause, concurring with a minute hematuria, point to Barlow's disease. The observations of Fraenkel, Hoffmann and Rehn have demonstrated that Röntgography is not only an excellent means for the positive identification of clinically doubtful cases, but that the typical changes on the bones which are clearly seen in the Röntgen picture are an early diagnostic symptom. The characteristic changes consist in a narrowing of the cortex and in an indistinctiveness of the fine cancellous tissue structures and either a broad, or narrow, or linear, or curved profoundly dark diagonal shadow on the line of attachment of diaphysis and epiphysis. Subperiosteal extravasations of blood are, of course, also recognizable in the Röntgenogram. The typical changes of the bones, as revealed by the Röntgen examination, continue for a long period after the clinical amelioration of the affection.

WESTERN.

A Rare Case of Idiosyncrasy for Egg-Albumen—P. LANDMANN, *Münchener med. Wochenschr.*, 1908, No. 20.

The case is remarkable because the idiosyncrasy existed throughout the patient's life. It was present in his earliest childhood. Proteids other than the white of the egg do not nauseate the patient. As a boy he was affected with urticaria brought about by egg-albumen which he had partaken of unknowingly. If he takes egg-albumen in but the smallest amount (without his knowledge), toxic phenomena of an alarming character, as vomiting, diarrhea, etc., will invariably supervene. If the egg-albumen be applied externally the untoward reaction is sure to follow. Autosuggestion is absolutely excluded.

MILL.

Mercurial Intoxication—L. BERNARD and J. TROISIER, *Gazette des Hôpitaux*, 1908, No. 61, May 26.

Report of a case of mercurial poisoning in which cerebro-spinal symptoms were present. The cerebro-spinal liquid exhibited on several occasions a pronounced lymphocytosis and albumin. The patient was intensely anemic. There occurred a temporary icterus which the authors ascribed to the anemia assuming that it belonged to the hemolytic variety.

MILL.

Incomplete Myxedema (Hypothyroidea)—A. R. ELLIOTT, *Jour. A. M. A.*, May 30, 1908.

In a condition so relative and of such transitional nature as myxedema, not all nor even the majority of the usual symptoms may be exhibited in a given case. The most frequent and characteristic symptom is the yellowish subicteroid tinging of the skin. In individuals of middle age in whom there is no evidence of hepatic or blood disease this symptom may indicate a possible thyroid insufficiency. The face may not be swollen and "moon-shaped" as in completely developed myxedema, but is yellowish, with watering of the eyes and slight swelling of the loose orbital tissues and a peculiar reddish flush over the malar prominences is often observed. The subcutaneous swelling may be only slight or intermittent, coming and going without apparent cause. It is frequently limited to the tissues of the eyelids. The temperature may be normal or only occasionally subnormal. The integument may retain its softness and moisture and there may be free perspiration at times. Diagnosis in such incomplete cases can be but tentative and the therapeutic diagnosis by the careful administration of thyroid extract has to clear the field and to prove the existence of hypothyroidism.

WESTERN.

Relation between Sciatica and Hip-Joint Disease—W. I. BRUCE, *The Practitioner*, April, 1908.

The author, by the aid of skiagraphy, comes to the conclusion that sciatica is only a symptom of hip-joint disease in many instances. Chronic arthritis contributes a large portion of these cases. Arthritis deformans and gout also contribute their share in its causation. Since tuberculosis of the hip-joint is associated with referred pain (to the knee) there is no reason why other hip-joint diseases should not cause pain referred along the sciatic nerve.

SACHS.

New Observations on Superficial Epithelioma—RECLUS, *Gazette des Hôpitaux*, 1908, No. 64, June 4.

A description of two cases of superficial epithelioma of the leucoplastic mucosa which had developed in cancrioid form. In literature no such cases are hitherto reported. The characteristic symptoms were the development on a leukoplakia, the appearance of a tumor, the lenticular or elliptic form, the induration on the basis, the ulceration on the surface. The development seemed that of a benign tumor without tendency to recurrence.

MILL.

Detection of Spirochætæ Pallida in Congenital Syphilis—C. GROUVEIN, *Zentralblatt f. Gynäkologie*, 1908, No. 18.

In nineteen cases of congenital syphilis the spirochætæ pallida were detected in almost every organ, in superficial papules, in pemphigus-cysts, in the liver, lungs, spleen, kidneys, placenta, brain, nerves, heart, blood-vessels, stomach, intestines, pancreas, testicles, ovaries, etc. In eleven cases the children were born alive; in six cases they were still-born. In the cases of the children born alive maternal syphilis could be demonstrated in nine instances.

MILL.

Gummatous Affections of Lymphatic Glands—S. HASTINGS, *Middle Essex Hosp. Jour.*, May, 1908.

In tertiary syphilis enlargement of lymphatic glands is comparatively rare especially in the acquired form. In syphilitic disease of the viscera the neighboring glands are sometimes enlarged, but the superficial glands are less often involved. Of the superficial group the inguinal and cervical glands are most frequently affected. Generally a group of glands is involved forming a mass bound together by fibrous tissue. If untreated, softening occasionally results with ulceration of the overlying skin. A thick yellow purulent discharge with tissue necrosis follows and exuberant granulations may spring up forming a fungoid mass. Sometimes cachexia develops. Syphilitic glands should be differentiated from tubercular glands, lymphadenoma and secondary carcinoma. Tubercular glands are usually encountered earlier in life and are more frequently limited to the anterior triangle. When degeneration does occur fistulæ are more frequent, while syphilis is prone to involve a

considerable area of the overlying skin. The diagnosis from carcinoma rests on the discovery of the primary growth. SACHS.

The Deep Intraocular Lesions of Infantile Inherited Syphilis and Tardy Inherited Syphilis, from the Standpoint of General Pathology, Prognosis and Treatment—C. S. BULL, Med. Rec., April 4, 1908.

Besides the gross lesions of infantile inherited syphilis seen in the retina, the chorioid and the optic nerve, and the more or less rudimentary stigmata seen in the iris, lens, and vitreous humor, the author has observed certain malformations or evidences of defective development in the eyeball, which may be directly traced to inherited syphilis. Patients with the stigmata of late inherited syphilis do not often present the classical type of the disease, as do almost invariably the infants and children. They are not often undersized or of slender build, and rarely exhibit a shriveled or stunted appearance. In most of the cases the diagnosis cannot be made with certainty until after the most searching scrutiny of the patient, and painstaking and extensive examination of the family. The ocular, dental and aural stigmata are of the greatest value. The dental stigmata are the most important, but the Hutchinson teeth are not always well-marked. We do not always find the three distinct features of a crescentic notch in the cutting edge of the incisor teeth, the oblique convergent direction of these teeth, and the screw-driver shape. Besides these features there is often an erosion of the cusps of the first molar, and a vicious implantation of the teeth, associated with precocious caries and the absence of certain teeth. These dental stigmata are much more frequently present in the patients with late inherited syphilis than are the deep intraocular lesions, and yet sometimes they are so faintly marked as scarcely to excite a suspicion. The diagnosis becomes relatively easy where the inherited taint has stamped itself on the general physiognomy of the patient. These may be a general stunted appearance, signs of senile decrepitude or a general infantile appearance from arrest of development. But there is nothing constant or regular in the occurrence of these stigmata. Certain aural stigmata may serve as diagnostic aids. If the patient presents a history of severe acute deafness, coming on suddenly without any prodromata, and there is no lesion which may account for it, there is great probability of the cause being inherited syphilis, which is increased if marked resistance to specific treatment is shown. While the inherited taint may affect the entire organism, it may also show itself in but a single organ, like the eye, the ear, or the teeth. When, after the most rigid examination no positive evidence is gained of inherited syphilis, we must turn to the family, both the immediate and collateral relatives, for assistance, and here the investigation must be made as rigid

and extensive as possible. Repeated miscarriages on the part of the mother and early infant mortality point almost unmistakably to inherited syphilis. We should try to estimate the real value of the stigmata in the diagnosis of inherited syphilis. The presence of inherited syphilis is proved by the existence of several of these stigmata. The presence of only one stigma, even but faintly developed, points to inherited syphilis, provided the examination of other members of the family reveals the presence of other stigmata.

WESTERN.

A Peculiar Affection of the Inguinal Lymph Glands—PIGEON and TANTON, *Archives générales de Medic.*, 1908, p. 76.

An inflammatory process of the superficial inguinal glands extending usually to the neighboring superficial and deeper groups of glands and quickly resulting in suppuration. An extended periaadenitis is developed, but the glands do not completely suppurate which prevents the formation of a large pus cavity. The external genital organs are the portals of infection, but this is not always of a venereal character. In a large series of cases the bacillus fluorescens (putidus and liquefaciens) was demonstrated.

RICHARD.

Diplococcal Peritonitis—H. SALZER, *Wiener med. Wochenschr.*, 1908, No. 13.

There exists in children, especially in girls, a pneumococcal infection of the body which invades at first the peritoneum and is sometimes confined to it. The symptom-complex of this primary idiopathic pneumococcal peritonitis is the following: the children become affected with severe abdominal pains of rather uncertain location and without any premonitory symptoms; there is vomiting and often diarrhea, which latter is of great significance; herpes labiales is a constant phenomenon. The temperature may be raised to 40 deg. C., the pulse is small and fast, and there is pronounced cyanosis and dyspnea; insensibility and bodily decline complete the grave clinical picture. The abdomen is somewhat distended and sensitive to pressure, however, the pronounced muscular rigidity as found in appendicitis is not present. The affection continues either as a general peritonitis and soon terminates lethally on account of cardiac weakness, or it develops as an encysted peritonitis with a large fibrinous-purulent pneumococcal exudate. The exudate which may amount to eight litres, finally finds its way to the outside mostly through the umbilicus, but occasionally through the rectum, bladder or vagina. When developing into an encysted state, the affection tends to gradual recovery; vomiting, and elevation of temperature subside, the pulse improves but the diarrheal discharges may continue for a number of weeks.

WESTERN.

The Diagnostic Value of the Ophthalmic Reaction in Typhoid Fever—
O. ORSZÁG, Deutsche med. Wochenschr., 1908, No. 15.

In as far as there is no stable typhoid toxin of uniform intensity the conjunctival typhoid test offers a number of imperfections. A positive reaction of the conjunctiva after six hours is not diagnostic of typhoid as it may ensue in other diseases. A positive reaction is found in most typhoid cases after twenty-four hours. A negative reaction during the febrile stage does not point to typhoid. About half of the typhoid convalescents react positively. In other diseases the reaction may sometimes be positive. The cutaneous reaction for typhoid appears to be valueless for diagnostic purposes.

ZIMMER.

The Ocular Typhoid Reaction—W. W. HAMBURGER, Jour. A. M. A., April 25, 1908.

By the instillation into the eyes of typhoid patients of one drop of an extract of the typhoid bacillus, a reactive inflammation has been caused which probably is specific and possibly universal. In diseases other than typhoid, a less intense and shorter reaction occasionally appears which in most cases may easily be differentiated. The extract of the typhoid bacillus is prepared in the following way. Gelatin plates covered with an eighteen to twenty hour old culture of virulent typhoid bacilli are washed with 4 to 5 cc. of sterile water. The suspension thus obtained is heated to 60 degrees C., centrifugated and the supernatant fluid withdrawn. The centrifugated organisms are then dried and triturated. A second suspension of these broken up bacillary bodies is then made and allowed to stand for from two or three days at 60 degrees C. The extract thus obtained after removing the disintegrated and digested rests are precipitated with alcohol, forming a fine coagulum. This is subsequently dried and powdered and dissolved in sterile water in the proportion of 0.02 mg. to a drop.

WESTERN.

The Blood-Diagnosis of Typhoid Fever with the Aid of Bile-Agar—
W. K. STEFANSKY, Medizinische Klinik, June 28, 1908.

Author used a culture-medium consisting of equal parts of bouillon and ox-gall with the addition of 2 per cent. agar, 1 per cent. pepton and 0.5 per cent sodium chlorid. This bacterial nutrient was filled into test-tubes, 15 cc. in each. The blood (3 cc.) was taken from a vein of the elbow by means of a hypodermic syringe. It was placed in two test-tubes with the nutrient medium and after careful shaking was poured into Petri dishes. The blood was therefore diluted with five times its quantity of the nutrient. Out of twenty-three cases of typhoid (the total number examined) typhoid cultures were obtained nineteen times, that is in more than 82%

of the cases; paratyphoid was not found a single time. The proportion of positive results is the higher the earlier the blood is obtained. The majority of the cases (fifteen) were examined during the second week of the disease and in 87% of them Eberth's bacillus could be demonstrated in the blood. In one of three examined cases cultures were even obtained in the third week of the disease. In two cases of recurrent typhoid, one of which run a very mild course, the causative factor was demonstrated. In all three patients who had come under observation in the first week of the disease the Eberth bacillus was found in the blood. On plates the cultures appear like small black points, which assume the form of a lentil after fifteen or sixteen hours. Begin of growth may be already after twelve or thirteen hours; after sixteen or eighteen hours the colonies are sufficiently large to be utilized for the agglutination test. A definite diagnosis of typhoid fever may hence be made within a day's time. Besides the small lentiliform colonies very large colonies may be produced on some plates. After eighteen or twenty hours their diameter may amount to 2-3 mm. After two days, such a colony may occupy more than half of the Petri dish. Typhoid bacilli from these giant colonies are characterized by their extraordinary great motility. A connection between the intensity of the disease and the number of bacteria circulating in the blood could not be ascertained.

RICHARD.

Mixed Infections in Typhoid Fever—F. PORT, *Deutsche med. Wochenschr.*, 1908, No. 13.

General mixed infections are probably of greater frequency in enteric fever than is usually maintained. In four of the author's cases there existed in the blood, besides the typhoid bacilli, colon bacilli, diplococci and staphylococci. In grave cases of typhoid fever, when there are complications of icterus, hemorrhage or a large amount of leucocytes, we may in reality have to deal with a mixed infection. Cases of mixed infection are of prognostic importance as they all appear to terminate lethally.

ZIMMER.

An Early Symptom of Measles on the Lachrymal Caruncle—B. SCHICK, *Gesellsch. f. innere Medizin u. Kinderheilkunde*, Vienna, March 19, 1908.

The phenomenon appears at about the same period as Koplik's sign. The lachrymal caruncle is swollen, and somewhat edematous (chemosis), the surface assumes a grayish-red, crumbled appearance which is due to very closely arranged nodules. These nodules exhibit white spattered specks (Spritzflecken) in the centre. There are but few analogous formations in close proximity to the caruncle.

WESTERN.

Stomatitis and Angina Ulcero-Membranacea (Plaut-Vincent) with Scarlatinoid Exanthema—P. EISEN, *Zentralblatt f. innere Medizin*, June 20, 1908.

Report of a case of Plaut-Vincent's angina concurring with a scarlatinoid exanthema. The patient, a girl six years old, was referred to the hospital with the diagnosis "diphtheria." The tonsils were red and much swollen, the right one was covered with a pseudomembrane as is seen in the second stage of Plaut-Vincent's angina. The pseudomembrane was situated in a whitish-gray, thin, irregularly-bordered mass, which covered almost the entire tonsil. It could be easily stripped off. Beneath it the reddened, swollen, readily bleeding and little infiltrated mucosa could be seen. The coating was very malodorous. The glands were swollen and an axillar temperature of 37.8 degree C. prevailed on the first day. There was no albuminuria. The body as well as upper and lower extremities were covered with a scarlatinoid, light red, small-patched and confluent rash, which had entirely disappeared the next morning. There were no diphtheria bacilli in the tonsillar coating, but the spindle-shaped bacilli of Vincent and the spirochætæ dentium were present in large amounts. The coating changed in a typical manner into an ulcer (third stage), a gray-yellow, smeary, thick and stinking mass with irregular borders. The mucosa beneath became also ulcerous, and covered with pus. It was much reddened and infiltrated. It took weeks for the ulcer to heal. There occurred no desquamation during the seven weeks' observation. The question arises whether this case is one of genuine scarlatina with synchronous angina ulcero-membranacea or whether it is a Vincent's angina with scarlatinoid exanthema. The author maintains that it is the latter on account of the fleeting rash, the absence of desquamation, and the slight and brief elevation of temperature.

WESTERN.

Glandular Fever—E. PFEIFFER, XXV. Kongress f. innere Medizin, Vienna, April 6-9, 1908.

An attempt to precisionize the clinical type "glandular fever" first dwelled upon by the author in 1889. The affection does not only occur in childhood; the author has seen many cases in adults. The typical clinical picture is as follows: the patient is suddenly seized with a high temperature, the examination does not reveal anything at first. There are some pains at deglutition and in the throat, the cervical glands are swollen and painful. The glands thus affected are situated behind the sterno-cleido-mastoid. The swelling is very pronounced forcing the head to adopt an oblique position. After a time the fever and swelling subside. The condition lasts two or three days. Occasionally the process is prolonged. If enduring for a few days the liver and spleen will also be found enlarged. There are,

pains between umbilicus and symphysis, and later there appears a peculiar sensitiveness in the region of the scapular triangle. Occasionally the hepatic swelling is very large; its reduction to normal size occurs very quickly, frequently in two or three days. Cardiac or lung symptoms are never observed. Rarely a hemorrhagic nephritis may supervene. The glands never suppurate. The patient remains very weak after the complete disappearance of the symptom-complex. Swelling of the maxillary glands and ulcerative processes in the mouth have absolutely nothing to do with glandular fever.

WESTERN.

Pneumonia due to Friedländer's Diplobacillus—F. APELT, *Münchener med. Wochenschr.*, 1908, No. 16.

The croupous pneumonias due to Friedländer's diplobacillus pneumoniæ are relatively rare. Clinically this type of pneumonia differs from pneumococcal pneumonia on account of the absence of herpes labiales and the chill, the presence of the characteristic slimy sputum containing numerous capsulated bacilli, and the malignancy of the pathological process. Anatomically Friedländer bacillus pneumonia shows gray-red hepatization, macroscopically recognizable mucous excretion of the cut surfaces, considerable deficiency of fibrin and erythrocytes in the exudate and a preponderance of the capsulated bacilli in the alveolar exudate. The demonstration of Friedländer's bacillus in the blood is of unfavorable prognostic significance.

RICHARD.

Comatose Pernicious Malaria—C. S. NEER, *Jour. A. M. A.*, June 6, 1908.

When the patient is found comatose and a satisfactory history cannot be obtained, a blood examination must be made for diagnostic purposes. The conditions with which comatose pernicious malaria is apt to be confused are cerebral apoplexy, sunstroke and uremia. The affection differs from apoplexy on account of the age and general appearance of the patient, the splenic enlargement, the condition of the blood and the malarial temperature. Malarial coma sometimes resembles sunstroke, and the heat may aggravate or precipitate a severe malarial paroxysm. A temperature above 104 degrees F. should be attributed to insolation rather than to comatose pernicious fever. Albuminuria and cylindruria exist in comatose malaria as well as in uremia, and the urinary examination alone does not reveal the true nature of the affection.

WESTERN.

Senile Tuberculosis—RANZIER, *Province méd.*, XX., No. 44.

Tuberculosis in the old is undoubtedly a more frequent occurrence than generally believed. Senile tuberculosis runs a similar course as the tuberculosis in other periods of life, but it has a greater tendency to amelioration than tuberculous disease at an earlier age.

Tuberculous foci outside of the lungs are rarely met with in the old. The complication of carcinoma and tuberculosis is very common in advanced age. Cancer of the esophagus and stomach are the most frequent. Emaciation is the principal symptom and senile tuberculosis, night sweats are rare. In differential diagnosis chronic bronchitis, bronchiectasis, emphysema and cancer of the lungs are to be considered. The demonstration of the tubercle bacillus, of course, renders the diagnosis positive. The prognosis is not unfavorable as the affection runs a slow and protracted course. ZIMMER.

Researches on Experimental Sporotrichosis—BEURMANN, GOUGEROT and VAUCHER, *Gazette des Hôpitaux*, 1908, No. 61, May 26.

The rat reacts quite well to the inoculation of suspected products of sporotrichosis. The sporotrichotic orchitis of the rat occurs after fifteen days—sufficiently early to serve for diagnostic purposes. Sporotrichosis is manifested by generalized granulations, red hepatization of the lungs, hepatic cirrhosis, osteo-arthritis, etc. MILL.

Microsporia at Schöneberg-Berlin—B. CHAJES, *Med. Klinik*, 1908, No. 24.

In view of the present epidemic at Schöneberg-Berlin the author relates that microsporia, while not a rare occurrence in France and England (especially in Paris and London), has not frequently been observed in Germany. The different forms of trichophytia of the hairy regions of the head are as follows: (1) Trichophytia caused by the microsporon audouini Gruby-Sabouraud. Symptoms—2 to 10 patches upon the head, each about 3 to 5 cm. in length, arranged in polycyclical form, slightly prominent, stained gray-blue by the roots of the broken hair. A few days after the onset of the infection the hair becomes fragile. Infections of the hairless parts of the skin are not very frequent. (2) Trichophytia caused by the microsporon caninum (lanosum). Symptoms—gray, round, slightly prominent patches, the rest of the hair having the form of a question-mark. Infection of the hairless regions of the skin in exceptional instances only. (3) Trichophytia caused by various macrospora. The symptoms vary in the different countries. In some cases large patches cover the head, in others the macrospores cause suppuration. The constant symptom of all trichophytiae is the fragility of the hair. According to Sabouraud one case of infection in a family, in spite of the best prophylactic measures, will cause the spread of infection to all the other members. MILL.

RESPIRATORY AND CIRCULATORY ORGANS

The Clinical Importance of the Inflamed but not Hypertrophied Palatine-tonsillar Tissue—O. MUCK, *Münchener med. Wochenschr.*, 1908, No. 20.

Chronic inflammations of the tonsils are due to or are influenced

by coalesced exudation products. The latter may call forth, even when they are very small and in the absence of hypertrophy of the glands, symptoms of pharyngitis, as difficulty in swallowing, burning sensation in the throat etc. Incision of the inflamed (not hypertrophied) tissues brings to light in nearly all cases a purulent fluid besides coalesced exudation products. In this, various bacteria, especially tubercle bacilli and streptococci, are found. This fact makes it evident that chronically inflamed tonsils, even in the absence of hypertrophy, may be the portals of invasion for the microorganisms of tuberculosis, articular rheumatism and other infectious diseases.

MILL.

The Existence of a Paravertebral Triangle of Percussion Dulness (Grocco's Sign) when Fluid is present in the Pleural Sacs—F. SMITHIES, *The Physician and Surgeon*, April, 1908.

Dulness to the opposite side of the spine in cases with fluid in the pleural sacs may have a distinct diagnostic significance. In many instances, this paravertebral area of dulness is roughly triangular in outline. Its size and modifications in shape vary with the degree and the character of the fluid in the pleural sac. The physical findings over the triangular area frequently resemble those found over the effusion. Alterations in shape, extent, and position of the triangle, with change in position of the patient, are occasionally of as great importance as the presence of the paravertebral dulness itself. In general, the sign is confirmatory of other physical findings, but, as in the cases of the author, there are instances where the presence of the triangle may be of considerable importance in differential diagnosis. A certain amount of experience with the sign is essential to the determination of the paravertebral triangle, and even when more than ordinary skill is available, there may be such physical barriers to accurate percussion—as thick parietes, fibroid pleura, etc.—as to mask the sign. In these instances, the auscultatory phenomena may not be lacking. Paravertebral dulness may be determined in pneumonia, ascites, subphrenic abscess, solid thoracic tumor, cystic abdominal tumor, etc., but in these events the dull area is not always triangular, is not always influenced by changes in position, and is frequently accompanied by clinical manifestations that are other than those of an accumulation of fluid in the pleural sacs.

REILLY.

The Relation of Pleurisy to Pulmonary Tuberculosis—H. S. GOODALL, *Med. Rec.*, June 27, 1908.

Laboratory methods will demonstrate that a very large percentage of cases of apparently primary serofibrinous pleurisy are of tuberculous nature. While it must not be lost sight of that pleurisy with effusion may accompany lobar pneumonia or may be caused by the pneumococcus without pulmonary involvement, and

that it may also result from streptococci, staphylococci, and other microorganisms as well as from cancerous disease; and while we must also remember that serous fluid in the pleural cavity may be merely a transudate due to renal or cardiac disease, we must nevertheless be convinced that all these causes together are responsible for only a minority of the cases of so-called idiopathic serofibrinous pleurisy, the majority being cases of tuberculosis of the pleura. When called upon to treat a case of apparently primary pleurisy with serous effusion, it is the physician's duty to bring to bear upon it as many methods of determining its nature as possible, and that only when there is positive evidence of a cause other than the tubercle bacillus should he discharge the case. In all serofibrinous pleurisies the absence of a demonstrable positive non-tuberculous cause should be accepted as a presumptive evidence that the case is really one of tubercular pleurisy, and the case should be watched and handled as a case of incipient tuberculosis for a period of not less than two years. Although it is not the rule, signs of pulmonary tuberculosis not frequently are found first at the upper part of the lung opposite to the side on which the pleurisy occurred. For this reason the entire chest must be explored.

WESTREN.

Acute Suffocative Catarrh of Laennec—S. WEST, *Lancet*, May 23, 1908.

This condition, first described by Laennec, is characterized by an acute catarrh of the medium-sized and small bronchi together with dyspnea. It is an uncommon affection lasting ten to forty hours or, at the most, some days. There is extreme cyanosis and dyspnea. In the early stage there is little expectoration. Physical signs are those of a bronchitis. It terminates in death or in an ordinary bronchial catarrh. The severe symptoms are due to a tumefaction of the membrane of the medium-sized and small bronchi. It must be differentiated from the following conditions. (1) Acute suffocative pulmonary edema. This condition depends upon failure of circulation due to heart lesions. In mitral or aortic disease congestion results and depending on the degree of obstruction and its rapidity of development may lead to suffocation. The heart-condition gives the clue to diagnosis. (2) Acute inflammatory congestion. This group of congestions may be confounded with suffocative catarrh. Belonging to this are acute capillary bronchitis and secondary broncho-pneumonia. The distinction lies in that they begin as an ordinary bronchitis which extends to the smaller bronchi, the symptoms increasing in severity as the disease progresses. Some cases of pneumonia, beginning in a diffuse congestion, may lead to an error in diagnosis, but if the patient lives a local spot of consolidation develops. (3) Collateral fluxion, respiratory failure. These conditions, secondary to some other affection, as pleurisy

with effusion, are due to collapse of the lung on account of inability to perform the extra work required. SACHS.

Apical Tuberculosis and Skiagraphy—H. ALBERS-SCHÖNBERG, *Deutsche med. Wochenschr.*, 1908, No. 20.

The Röntgen ray examination has become an important factor in the diagnosis of pulmonary diseases. While fluoroscopy alone permits of a definite diagnosis but in rare instances it is a valuable accessory and controlling diagnostic means. Skiagraphy, however, gives as good or even better results than the physical methods of examination. In the presence of small infiltrations incipient apical tuberculosis may often be recognized by the Röntgen photographic plate. Cavities and lime deposits in the lung tissues are readily distinguished in the Röntgen picture, and the cloudiness of a lung apex may direct attention to a recently established apical tuberculosis. Of course, only perfect Röntgenograms can serve a diagnostic purpose.

WESTERN.

Suppurative Pericarditis in Children—F. J. POYNTON, *Quarterly Jour. of Medicine*, April, 1908.

Suppurative pericarditis in children follows most frequently pneumonia, empyema, otitis media, osteomyelitis and other suppurative processes. Running an acute course of from one to four weeks, subacutely from one to six months and chronically (rare) from six to twelve months, it is invariably a fatal affection. Diagnosis is extremely difficult, but 6% of the cases are recognized before autopsy. Pericardial friction sounds are rarely present, occurring in only 2% of the cases, and still less frequently is it associated with endocarditis. Eighty-four per cent. of the cases occur before the fourth year of life.

SACHS.

Researches on Respiration in Heart Diseases—S. RUBOW, *Deutsches Archiv f. klin. Med.*, 1908, Nos. 3 and 4.

By the average capacity of the lungs is understood the quantity of air which is contained in the lungs at the moment of half-completed inspiration or expiration. Patients affected with cardiac disease are enabled to compensate for the increased work of their pulmonary circulation by means of augmenting the average capacity. All the cases reported show the possibility of such compensation. As a consequence of the difficulty of maintaining a constant excessive amount of air in the lungs dyspnea is inevitable, but the latter may be favorably influenced by systematic respiratory exercises. Nevertheless the dyspnea in such cases is not a pathologic but a compensatory phenomenon.

MILL.

Paroxysmal Tachycardia—J. PAL, *Wiener med. Wochenschr.*, 1908, No. 14.

Report of a case of paroxysmal tachycardia in which the onset

of the tachycardia invariably concurred with a marked diminution of systolic pressure. The patient had typical abdominal attacks of pain, running parallel with high tension. These attacks were interrupted when a tachycardic seizure supervened. Amyl nitrite also suppressed the abdominal attacks and also effected a marked lowering of the systolic pressure. The author concludes that tachycardia and diminution of blood-pressure are not interdependent, but that they have to be looked upon as two coördinate phenomena. ZIMMER.

Traumatic Inefficiency of the Mitral Valve—CLAISSE and SOQUET, *Gazette des Hôpitaux*, 1908, No. 64, June 4.

Contrary to other authors who doubt the possibility or probability of traumatic heart lesions unless in cases in which the heart and the surrounding tissues have lost their normal resistance on account of atheromatosis or other pathological processes, the authors report the case of a laborer with entirely healthy heart, as evidenced by necropsy, in whom occurred a rupture of the mitral valve as the result of excessive effort. Death, as positively demonstrated by the autopsy, was not due to an old pathologic process, but was solely the result of the traumatism. MILL.

Stokes-Adams Disease—E. DE RENZI, *Berliner klin. Wochenschr.*, 1908, No. 18.

Patient, 69 years old, excessive smoker, luetically infected, exhibited the following symptoms of a disease which must be considered an affection of the myocardium, viz., infrequent pulse, nervous attacks and unconsciousness, light dyspnea, increase of blood-pressure, alteration of heart rhythm, affection of kidneys and albuminuria.

MILL.

ALIMENTARY TRACT

Spontaneous Rupture of the Esophagus—F. COHN, *Mitteilungen aus den Grenzgebieten d. Medizin u. Chirurgie*, XVIII, No. 2.

There is a characteristic symptom—complex of spontaneous rupture of the esophagus. It occurs in middle-aged males, mostly drinkers. The rupture ensues mostly after an act of vomiting. The most characteristic symptoms are: bloody vomit, severe pain in the pit of the stomach, collapse, dyspnea, cyanosis and a typical emphysema of the skin. ZIMMER.

On the Reciprocal Relations of Menstrual Disturbances and Gastric Diseases, and their Importance in Diagnosis—PLÖNIES, *Monatsschr. f. Geburtshülfe u. Gynäkologie*, 1908, No. 5.

The reciprocal influence of menstrual disturbances and gastric diseases is noticeable in about 83% of the pertaining instances. Dis-

eases of the stomach cause anemia, under-nutrition and, by retention of metabolic products, such toxic substances which may give occasion to various disturbances of menstruation. On the other hand, the hyperemia of the genital tract at the time of menstruation may deprive the stomach of the necessary amount of blood and thus cause disorders of digestion.

MILL.

The Gastric Secretion in Old Age—J. FRIEDENWALD, *Am. Med.*, June, 1908.

The author's observation make it evident that the gastric secretion has a tendency to diminish in old age, and in a degree proportionate to the arteriosclerosis, and that it is therefore unwise to attach too much importance to the absence of this secretion in individuals advanced in years, in the diagnosis of cancer of the stomach.

WESTERN.

Arteriosclerosis of the Stomach—A. M. v. LEWIN, *Archiv f. Verdauungskrankheiten*, Vol. XIV, No. 2, April 21, 1908.

The diagnosis of gastric arteriosclerosis is no easy task, as, except the hematemesis, the other clinical symptoms of the affection are little known. However, even if there is no hematemesis, gastric arteriosclerosis cannot remain without influence upon the function of the stomach. Gastric ulcers, especially when multiple, are always accompanied by painful sensations, and although the clinical picture of the typical round gastric ulcer is usually displayed at an earlier period of life, it is nevertheless probable that certain gastralgias and "stomach cramps" of individuals advanced in age, have as their anatomical substrate an arteriosclerosis. It is also very probable that the pseudo gastralgic form of angina pectoris is the result of a sclerosis of the gastric arteries. If we have to deal with hematemesis, especially in the recurrent form, in an individual advanced in age and affected with general arteriosclerosis, the latter has to be suspected as the possible cause of the hemorrhage, in case there are no symptoms pointing to cirrhosis of the liver or cancer of the stomach. Arteriosclerotic hemorrhage from the stomach may ensue in younger individuals in the absence of general arteriosclerosis; in such instances the differential diagnosis between the hemorrhage from the round gastric ulcer, especially when latent, and that from arteriosclerosis is frequently impossible.

WESTERN.

Suppurative Phlegmonous Gastritis—W. BOVEE, *Am. Jour. Med. Sciences*, May, 1908.

This condition is of exceedingly rare occurrence. There is a diffuse and a circumscribed variety. It may be considered a local infection of the gastric mucosa, usually by streptococci, less frequently by colon bacilli and staphylococci. The onset is sudden. Most cases are diagnosed as acute gastritis. Pain, persistent and of varying severity,

increasing on pressure, is present in 75% of the cases. Continuous vomiting of, at first, the gastric contents, which is followed by that of bile, constitutes a prominent symptom. Pus is rarely vomited. Most cases show temperature elevation of from 99 degrees F. to 104 degrees F. Jaundice and hiccough are of common occurrence. The symptoms of the circumscribed form are the same as of the diffuse variety except that the pain is more localized. Diagnosis is extremely difficult. Pus when present is very suggestive. SACHS.

Hemorrhage from the Stomach and Duodenum—W. J. MAYO, Surgery, Gynecology and Obstetrics, May, 1908.

A single hemorrhage from a patient who has not previously had gastric distress or hyperacidity is probably not from an ulcer. Coffee-ground stomach contents or occult blood in small amounts constantly occurring distinguishes cancer from ulcer, as in most cases hemorrhage from the latter is copious and infrequent. SACHS.

The Right Supraclavicular Glands in Gastric Carcinoma—P. HOSCH, *Mitteilungen aus den Grenzgebieten d. Medizin u. Chirurgie*, XVIII, No. 3.

Swelling of the left supraclavicular glands is of apparent diagnostic significance for abdominal carcinoma. In a case of the author there existed enlargement of the right-sided supraclavicular glands. On necropsy it was found that the ductus thoracicus was probably connected with the right veins. ZIMMER.

Tuberculosis of the Gastro-Intestinal Tract—R. MATAS, *New Orleans Medical and Surgical Jour.*, July, 1908.

Gastro-intestinal tuberculosis is a relatively frequent primary disease, independent of pulmonary or laryngeal infection and characterized by well defined localized lesions which undergo a typical and systematic evolution into various and now well recognized clinical types. These lesions are the result of the direct inoculation of the mucosa, submucosa and serosa of the intestine with or without participation of the peritoneum or of the mesenteric lymphatics. With the progress of abdominal surgery and the examination intra-vitam of specimens of resected intestines (usually mistaken for malignant neoplasms or intestinal tumors of unknown causation) the true nature of these lesions has been revealed. As a result of the identification of these tumor masses and strictures with a primary localized tubercular infection, a new impetus has been given to the surgical treatment of tuberculosis. PAGE.

Chronic Adhesive Appendicitis—V. HABERER, *Mitteilungen aus den Grenzgebieten d. Medizin u. Chirurgie*, XVIII, No. 2.

There exists a primary chronic appendicitis the course of which is neither characterized by attacks nor by any symptoms. The pa-

tients affected with this form of appendicitis are generally well advanced in years and have for years exhibited a symptom-complex resembling an intestinal stenosis on account of the very pronounced emaciation and grave systemic deterioration. These symptoms are the result of chronic changes, viz., connective tissue adhesions of the peritoneum in the immediate vicinity of the appendix and in more distant parts. Breaking up of the adhesions by operation is usually followed by general improvement. ZIMMER.

Carcinoma of the Appendix—BELLANTONI, Gazz. degli ospedali, 1908, No. 14.

Carcinoma of the appendix is of more frequent occurrence than is generally supposed. One per cent. of all cases of appendicitis are carcinomatous in nature. Appendical carcinoma occurs at an earlier period of life than does carcinoma of other organs. It is more frequent in women than in men. The clinical symptoms of the affection are those of a common appendicitis and an abscess of the right iliac fossa. Carcinoma may be diagnosed if the clinical examination reveals an abscess of the right iliac fossa and the blood examination shows the leucocytes to be less than 15,000 per cubic millimeter. Carcinoma of the appendix recurs but rarely when operated upon in time. ZIMMER.

Symptoms and Diagnosis of Subphrenic Abscess—LANCE, Gazette des Hôpitaux, 1908, Nos. 62 and 63, May 28, 30.

This monograph is valuable on account of its exposé of the differential diagnosis. Subphrenic abscess may be mistaken for cancer of the stomach, typhoid fever, phthisis, broncho-pneumonia, pulmonary gangrene, etc. In all these affections we find fever, rapid cachexia, and other characteristic symptoms of subphrenic abscess. Most diagnostic errors are made in regard to purulent pleurisy and pyopneumothorax. As a rule the complete absence of pulmonary symptoms speaks for subphrenic abscess if the latter is not complicated by pleural and pulmonary lesions. While in pleurisy and pyopneumothorax the heart is displaced slightly upward and considerably to the side; the displacement in subphrenic abscess is but slightly to the side and considerably upward. Puncture of the abscess is not a safe differential diagnostic means as there may be a communication between the subphrenic abscess and an empyema. The same difficulties may be encountered as regards the differential diagnosis between subphrenic abscess and abscess of the liver. The characteristic symptoms of the latter are the high fever and icterus. MILL.

Chronic Ulcerative Colitis—W. ZWEIF, Archiv f. Verdauungskrankheiten, Vol. XIV, No. 3, June 10, 1908.

Ulcerative colitis is that form of intestinal catarrh in which the

characteristic feature consists in the production of ulcers on the basis of an acute inflammatory process of the colon. These ulcers are mostly located in the sigmoid flexure and the ampulla recti, and may also be met with in higher portions of the colon even in the cecal region. The size of the ulcers may vary between that of a lentil and a good-sized silver coin; at other times the ulcers are so small that they cannot even be detected by a careful examination. An acute colitis develops under the syndrome of a general infection, as headache, fever, languor, and painful sensations in the limbs, etc., with frequent mushy or watery discharges in which, macroscopically, mucus, blood and pus may be distinguished. The amount of blood may be very small, but may also be so large as to be dangerous to life. Frequently there is a slight distention of the abdomen and a more or less circumscribed pressure-sensitiveness in the left iliac fossa. In this region there is frequently a sausage-shaped, moderately tough, slightly painful area of resistance, which may, however, be absent in many cases. Tenesmus is not observed as a general rule, but the patients complain of a dull pain in the vicinity of the umbilicus. In a few days, the pathological phenomena gradually subside, the fever ceases by lysis and the evacuations become harder and less frequent. Acute ulcerative colitis terminates but rarely in complete recovery. A chronic state nearly always follows an acute attack. The chronic form causes but little inconvenience to the patient. The feces, however, always exhibit in the chronic form more or less mucus, and occasionally also traces of blood. In the chronic form of ulcerative colitis there supervene the characteristic recurrences which, apparently, may be called forth by quite insignificant causes.

WESTERN.

Some Points on the Symptoms and Localization of Intestinal Obstruction due to Carcinomata—R. L. WILBUR, California State Jour. of Med., April, 1908.

The differentiation of chronic intestinal stenosis or occlusion due to new growth and the interference with peristalsis in chronic peritonitis is full of interest, and in distinguishing the two, where no tumefaction is detected, after examining all possible hernial openings and the rectum one should look for visible peristalsis as a sign of occlusion and pronounced tenderness on pressure as an indication of peritonitis. The chronic stenosis and obstruction are readily differentiated from the acute by the irregular symptoms, moderate abdominal pain, slight vomiting, history of constipation and spurious diarrhea, the loud gurgling intestinal sounds, the history of coated tongue, and normal temperature, and usual uneven distention of the abdomen of the chronic form and the more violent pain, severe vomiting, and collapse generally present in the acute form. The

localization of some of the growths of the intestine appears possible, particularly if they are situated in the rectum or lower part of the duodenum. In diagnosing stenosis of the small intestine the following points are of help. Rectal irrigation will often empty the colon, and with remaining abdominal distention and changes in shape of abdomen from distended loops of intestine will often point to the small bowel as the seat of obstruction. Pain is such a common functional symptom that unless it is constantly felt by the patient and tender to pressure at a given point it is not of much value, although it usually comes earlier as a symptom of small bowel involvement than of large. Indicanuria has been urged as more indicative of small bowel stenosis than of large, when present in a suspected case. Examination of the stool, aside from the presence of bile, can be of little value in localizing the point and cause of obstruction, but of course the presence of blood and mucus may throw light on the case in general. Vomiting is usually more violent and severe and more readily stercoraceous in small intestinal occlusion than in large.

WESTERN.

Acute Yellow Atrophy of the Liver in Syphilis—W. FISCHER, Berliner klin. Wochenschr., 1908, No. 19.

Male, twenty-two years old, treated for acute yellow atrophy of the liver, died ten days after he came under medical observation. Five months previously he had acquired syphilis, the exanthema of which had not been subjected to treatment. Immediately after death, monkeys were inoculated with fresh parts of organs, but no spirochetes could be found in the skin, liver and inguinal glands of the inoculated animals.

MILL.

Clinical Value of the Pancreatic Reaction in the Urine—C. WATSON, British Med. Jour., April 11, 1908.

There is a definite connection between diseases of the pancreas and the pancreatic reaction as devised by Cammidge. An analysis of 120 consecutive cases showed the reaction to be present in (1) a group in which there is a definite disease of the pancreas, as acute or chronic pancreatitis, (2) a group in which there is general arteriosclerosis and therefore arteriosclerosis in the glands of the body, (3) those cases in which the reaction is dependent on catarrhal conditions of the gland-duct and substance.

SACHS.

Hemorrhagic Pancreatitis with Fat Necrosis—BÉRARD and CHALIER, Province méd., 1908, No. 5.

Cyanosis of the abdominal integument, especially over the umbilicus, is a valuable symptom for the recognition of the affection, the only possible cure of which can be accomplished by an early operation with drainage of the pancreas.

ZIMMER.

The Infectious Origin of Chronic Pancreatitis and Diabetes—F. HIRSCHFELD, *Berliner klin. Wochenschr.*, 1908, No. 11.

Symptoms of pancreatic disease may be occasionally encountered after influenza or angina. These symptoms consist in gastrointestinal disturbances, often together with attacks of colic, thirst and glycosuria. There is no polyuria. The symptoms persist for from one to five months, recurring mostly after from half a year to three years. All of the author's patients had congenital diabetes and exhibited neurotic tendencies. In two of his cases there occurred a temporary enlargement of the liver. A transitory enlargement of the liver ensues mostly in diabetics who, later on, present the symptoms of grave diabetes, but cases of diabetes with chronic enlargement of the liver run a perceptibly mild course. Alcoholism and syphilis, which favor the production of hepatic cirrhosis, appear to exert a propitious influence upon the course of the diabetes. Besides acute pancreatitis an acute hepatitis may develop as a sequel of an infectious disease. Such a hepatitis may cause a chronic hepatic enlargement in the alcoholic or syphilitic. The acute inflammatory states of pancreas and liver are very often overlooked, and it is probable that they are recognized solely by the glycosuria and the hepatic enlargement.

WESTERN.

NERVOUS SYSTEM

Tendon Achilles Reflex—CONZEN, *Münchener med. Wochenschr.*, 1908, No. 19.

The tendon Achilles reflex is a phenomenon equally as constant as the patellar reflex. It reacts just as readily as the latter in diseases of the nervous system. Its unilateral absence, and occasionally the different behavior of the reflex in both sides, are of pathological significance.

GOODHART.

Urinary Alkaline Phosphates: the Pulse of the Nervous System—J. H. DOWN, *Med. Rec.*, May 9, 1908.

As the radial artery tells the condition of the circulatory system, so the phosphates in the urine—the author maintains—tell us the condition of the nervous system. They go further than the pulse, the author continues, acting as a barometer, for they tell of the past and foretell the future. The coming storm may be prognosed and combated before it arrives. Although there may be no external evidences, a large increase in phosphates means nerve and especially central irritation.

WESTERN.

Hyperhidrosis Unilateralis—J. FRIEDLÄNDER, *Deutsche med. Wochenschr.*, 1908, June 4.

Hyperhidrosis unilateralis is a secretory anomaly characterized by disturbance of sudoral innervation which is limited to one side. We may differentiate between central and peripheral hyperhidrosis unilateralis. Either form is chronic in tendency but of a benign nature.

GOODHART.

Localization and Clinical Symptoms of Intracranial Hemorrhages in the New-Born—L. SEITZ, *Münchener med. Wochenschr.*, 1908, No. 12.

Supratentorial hemorrhage should be differentiated from infratentorial hemorrhage. The latter is especially dangerous, invariably calling forth a fatal issue. Pressure symptoms attributable to the medulla oblongata are present in exitus. In supratentorial hemorrhage the children usually become restless on the second day, cry and refuse nourishment. Corresponding to amount and location of the hemorrhage there ensue manifestations of general brain pressure, and also direct and indirect cardiac symptoms.

GOODHART.

Clinical Researches on Amnesia—M. R. BENON, *Gazette des Hôpitaux*, 1908, No. 67, June 13.

Memory is defined as the faculty of conservation or fixation of certain states, sensations or representations, their reproduction, recognition and localization. Amnesia or loss of memory is partly of functional origin, and partly arises from organic or destructive processes. In some cases amnesia is limited to a certain group of sensations or representations, while it is general in other instances. Further distinctions have to be drawn between temporary and permanent, intermittent and progressive amnesia. The lack of an exact memory in as far as it is caused by defective apperception, should rather be called pseudo-amnesia than paramnesia. In close connection herewith stands the fact that amnesia is always the result of trauma or systemic disease, while pseudo-amnesia may also be produced by illusions and hallucinations without organic changes.

MILL.

The Eye Syndrome of Dementia Precoc—H. H. TYSON and L. P. CLARK, *Jour. A. M. A.*, May 2, 1908.

Three years ago the authors undertook an independent research on the significance of the ocular signs and symptoms in dementia precoc. They have analyzed 115 consecutive cases. They divide the fundus changes as seen clinically into three groups which are usually in the order of their occurrence, as follows: (1) congestion of discs; hyperemia and edema; dilated, dark-colored veins; slightly contracted arteries and blurring of the edges of the discs, all varying in degree. These changes constitute a low grade of perineuritis of the optic nerve. (2) Congestion of the nasal side, with temporal pallor of discs, dilated veins, contracted arteries. (3) Pallor of discs, dilated veins, contracted arteries. These changes constitute anemia and partial

atrophy of the optic nerve. One hundred and nine cases were examined with the ophthalmoscope; 55 were males, 54 females. The ages of the males were from 12 to 47 years, those of the females from 13 to 39 years. All the different forms of the affection were under study. The more marked changes in the eye syndrome were found in the more rapidly deteriorating types of dementia precox. Of the 109 cases ophthalmoscopically examined, a low grade perineuritis was found 62 times in the right eye and 67 times in the left. Temporal pallor, with nasal side congested, was found in the right eye 10 times, in the left eye 11 times. Pallor of discs was found in the right eye in 37 cases and in the left eye in 31 cases. The pupils were examined in 85 cases. An average enlargement of $1\frac{9}{85}$ mm. for dementia precox over the normal was evident. The light reaction was active in 71 cases and sluggish in 14. Consensual reaction was active in 68 cases and sluggish in 17 cases. Accommodation and convergence were active in 71 cases and sluggish in 13. The visual color fields were examined in 81 cases. All were found concentrically contracted. The changes in the discs, pupils, visual fields and corneal sensibility, which, when taken together, constitute the new syndrome, are all in accord with each other. In the examination of all other types of insanity, imbecility or idiocy the authors have found no other condition similar to that they have outlined here for dementia precox. These findings indicate that dementia precox is attended by such an early constant syndrome of alteration and disc, visual field, pupil and corneal sensibility as to materially aid in diagnosing this psychosis. Consideration of the syndrome will particularly aid in the differential diagnosis of dementia precox from the manic-depressive group, acquired neurasthenia, hysteria and the various forms of imbecility and constitutional inferiority. The syndrome is also of prognostic value, as the severer grades of eye changes are found in the more rapidly deteriorating cases.

GOODHART.

Juvenile Tabes—E. JONES, *British Jour. of Child. Diseases*, April, 1908.

Juvenile tabes is a rare disease, although frequent enough to be of importance. It may be acquired but is mostly inherited and rarely shows itself before the twelfth year. Reliance is to be placed on the presence of the Argyll-Robertson pupil, loss of knee-jerk, primary optic atrophy, lightning pains and especially the presence of lymphocytosis and excess of albumin in the cerebro-spinal fluid. Bearing in mind that no symptom or sign occurs in adults which has not been described in the juvenile cases, the latter distinguish themselves by their essential chronicity, rareness of ataxia, early vesicular symptoms (incontinence), and their association with general paralysis. Juvenile tabes is to be distinguished from pseudo-tabes (due to multiple neuritis) by the presence of the Argyll-Robertson pupil, the ab-

sence of paralysis, wasting of muscles and electrical changes. From Friedreich's ataxia by the presence in this disease of changes in speech, nystagmus, Babinski's plantar symptom and early ataxia.

SACHS.

The Relation of Locomotor Ataxia and Paresis—J. R. HUNT, N. Y. Med. Jour., July 4, 1908.

The clinical course of events in the development of taboparesis (the combination form of tabes and paresis) may be as follows: Symptoms of locomotor ataxia may appear first, this affection running its usual course, the symptoms of paresis supervening. Such paretic indications may develop within a few months, or may not appear until after the lapse of many years. In rare instances as long a period as twenty years has elapsed between the onset of the tabes and the first symptoms of dementia paralytica. On the other hand, the case may begin as one of paresis, the tabetic symptoms developing subsequently. In not a few of the cases paresis and tabes begin simultaneously and run their course together. Taboparesis occurs so frequently that it cannot be regarded as a mere coincidence. The following clinical combinations of tabes and paresis may occur: Simple tabes; tabes with slight psychical disturbances; tabes with signs of incipient paresis; tabes with well-marked paresis; paresis coming on early in tabes; paresis beginning with tabetic symptoms; tabes and paresis in combination; paresis in which the tabes appears late; paresis with only certain tabetic symptoms; paresis without tabetic complications.

GOODHART.

URINARY ORGANS—MALE GENITALIA

The Phloridzin Test—E. BEER, Jour. A. M. A., June 13, 1908.

The author refers especially to the influence exerted by a diseased kidney on the excretory work of the other kidney. There is a factor underlying functional tests that has not been emphasized sufficiently in the past. Until this factor can be determined all functional tests of the excretory activity of a kidney are misleading. All negative results might be due to this factor, and all positive results may lose some of their importance by a stimulating or inhibitory influence. The author does not discuss the nature of this influence, but concludes that the second kidney may be so influenced in its excretory activity as to appear functionally deficient, owing to the presence of a diseased kidney, and that as soon as this influence has been removed this apparently inadequate second kidney responds to the functional tests as a normal organ.

WESTERN.

Cast in Urine and their Clinical Significance—L. HEITZMANN, Med. Rev. of Rev., April, 1908.

Whenever true casts are found in the urinary sediment perfect

health does not exist. However, it is not always an easy task to differentiate between true hyaline casts and cast-like formations of mucus, so-called cylindroids. These may readily be mistaken for true casts, especially upon hurried examination with low magnifying power. Cylindroids have no pathological significance, since they may be derived from any part of the genito-urinary tract without any pathological condition of the kidney. Those who claim that true casts may be found in perfectly healthy individuals, who go so far as to claim that they are found in practically every specimen of urine, undoubtedly do not differentiate between true tube-casts and castlike formations derived from other parts of the genito-urinary tract. The most common pseudo casts are the mucus casts; other castlike formations are urate casts, bacterial casts, pus casts, fibrin casts. In most of the pseudo casts mucus is present, and it is due to this that urates, bacteria, etc., conglomerate so as to resemble casts, although accidental formations in the shape of casts are also seen. The greatest care should be exercised to differentiate between true hyaline casts and mucus casts. Hyaline casts are pale, transparent formations of variable length and not infrequently difficult of detection in the urine. Mucus casts may resemble these in their outlines, although they can usually be differentiated from them by their irregular contours, their tapering ends and their more or less striated interior. They may be quite long, and are often twisted and folded. When their outline is fairly regular it is important to look for fine threads running through them, and never to call any formation a hyaline cast if any threads whatever appear within or upon it. Hyaline casts are usually structureless, although at times a pale granulation is noticeable in them. This is not sufficiently marked to allow of their classification as granular casts.—Generally speaking, hyaline, epithelial and blood casts are found in acute parenchymatous nephritis, while granular, fatty and waxy casts are found in chronic inflammation. In the first few weeks of an inflammation granular casts rarely appear; fatty and waxy casts never. As soon as the absolutely acute attack commences to subside and the inflammation assumes a more subacute form, granular casts, first in small, then in larger numbers, are always seen, while the hyaline and epithelial casts are still abundant. In exceptional cases granular casts can be found at the end of the first or the commencement of the second week of the inflammation. This is seen especially in children in whom a nephritis develops after contagious diseases, such as scarlet fever and diphtheria. A diagnosis of the presence of casts in the urine should under no circumstances be based upon the findings of cast-like structures alone. Such structures must always be associated with other evidences of a pathological condition before a diagnosis of nephritis becomes permissible.

WESTERN.

Diagnosis of Impacted Renal Calculus—F. M. JOHNSON, *Am. Jour. of Urology*, May, 1908.

A positive diagnosis in all cases cannot be derived from chemical and microscopical examinations of the urine alone. A large-sized calculus may be present for a long time without giving rise to troublesome symptoms. When pyonephrosis exists in a kidney, unrelieved or aggravated by lavage, the latter should be discontinued and the causative factor be looked for—first by skiagraphic examination, and if this proves negative, by exploratory incision. PAGE.

The Röntgen Ray in the Diagnosis of Renal and Ureteral Calculi—R. D. CARMAN, *Jour. Missouri State Med. Ass.*, May, 1908.

The accurate diagnosis of renal or ureteral calculus is possible by the Röntgen ray only. Clinical symptoms alone do not suffice to determine the presence or absence of renal calculus, the number of stones, their size or location. Every suspected case of calculus should be radiographed and the radiographic examination should yield a definite result. The interpretation of the plate is as important as the making of it. The causes assigned for radiographic errors are, for the most part, not insuperable. There are few which cannot be overcome by improvement in technic, by perseverance and by experience. PAGE.

Renal Tuberculosis—F. KORNFELD, XXV. Kongress f. innere Medizin, Vienna, April 6-9, 1908.

It is not true that the demonstration of tubercle bacilli in the urinary sediment of one kidney is a strict indication for the extirpation of the latter. Present day technic of functional renal diagnosis does not permit of trustworthy conclusions as regards the actual anatomical condition of the examined kidney. A well founded diagnosis and indication for treatment can only be derived if the results of the various methods of examination (phloridzin and indigocarmin tests, freezing point determination, experimental polyuria), and those of all the physico-clinical methods of general examination together with the chemical and bacteriological analysis of the urine, harmonize with each other. In spite of all diagnostic methods a positive diagnosis for the presence of the very first stages of renal tuberculosis cannot be rendered, and the result of the functional renal examination may even lead to wrong therapeutic measures. WESTERN.

Sarcoma of the Kidney in Infants—W. F. CHENEY, *Archives of Pediatrics*, April, 1908.

Renal sarcoma is very rare in infants. There are no manifestations until an abdominal tumor is palpable. A painless tumor, occupying one side of the abdomen, of rapid growth, hard in con-

sistency and concurring with little systemic disturbance is generally sarcomatous. Renal sarcoma may be differentiated from hydatid cysts of the liver by its position, from tumors of the spleen by the notched border of the latter and their general contour; from cysts of the kidney, hydro and pyonephrosis by their soft consistency and fluctuation.

SACHS.

Prostatic Disease in the Diabetic—HEINRICH STERN, *Am. Jour. of Urology*. May, 1908.

(1) Prostatic disease in the diabetic is commonly overlooked by the family physician, who is wont to ascribe certain symptoms of the former to the diabetic syndrome. (2) A prostatic state may ensue in the diabetic ten, twenty and more years earlier than in the normal individual. (3) Early prostatism in the diabetic may be the result of gonorrheal prostatitis in which the sugar-laden urine participated in the perpetuation of the inflammatory process, or it may be due to another infection, or the pathological changes in the gland were evoked by the direct action of the urinary glucose, its yeasts and fungi, or, finally, nutritive or secretory disturbances of the gland stood at its foundation. (4) The early prostatic state in diabetics is much akin to the same condition consequential to senile hypertrophy, excepting that in early non-infectious hypertrophy all three lobes of the glands are usually involved. (5) The pre-senile prostatic state in the diabetic appears at the onset in the form of transitory seizures. Gradually the attacks diminish in severity and attain a certain degree of chronicity. (6) Prostatic disease of infectious origin may antedate the diabetic state; senile hypertrophic changes in the prostate may exist prior to the outbreak of diabetic phenomena; prostatic disease may be the result of the diabetic urine; the prostatic state may be the consequence of the self-same causes which give occasion to the diabetic deterioration or it may be a direct result of the latter. (7) Constitutional prostatism, the form of chronic prostatic disease due to systemic disorder or decline, is probably the mediate consequence of an inflammatory process starting in the blood vessels and connective-tissue structures of the gland itself. (8) The changes in the prostate in constitutional prostatism are of similar character as those found in other organs of the affected individual. (9) Unless anti-diabetic treatment is applied, prostatic disease in the diabetic, in spite of all local therapy, will not improve.

PAGE.

A Means of Recording the Efficiency of Urinary Discharge per Urethram
—A. N. M'GREGOR, *Glasgow Med. Jour.*, June, 1908.

The means at present employed to measure the size of the urethra are somewhat inaccurate. Otis' formula for finding the

diameter of the urethra is admittedly too high. The rate of the normal affluent has not apparently been determined. It is a difficult task to estimate the rate of urinary flow as the amount of muscular force employed, nervousness, character of urine, the varying length of the urethra and its different directions are all variable and indefinite. A patient with a stricture complains that he takes longer to urinate than when the urethra was normal, and on this fact the author's method is evolved. The patient ascertains with a measuring glass the quantity of urine passed by him in five seconds. A series of observations is made daily and a chart-record is kept. The charts show that considerable variations in the amount of urine passed in five seconds occur during the twenty-four hours, which are probably due to haste and varying pressure. The reading in the morning, a period when the quantity of urine in the bladder is most constant and nervous influences are less prone to occur, shows that the rate of discharge amounts to from 128 cc. to 160 cc. of urine in five seconds. A discharge of 160 cc. urine in five seconds is equal to the rate of flow after the use of a 20 F. bougie.

SACHS.

Intussusception of the Urethra—H. HANS, *Med. Klinik*, 1908, No. 24.

A laborer, thirty-seven years old, obtained a deep injury of the perineum by a fall. A severe hemorrhage from the place of injury and the urethra ensued. The trauma was not treated surgically. After two weeks, retention of urine supervened. The catheter could not be introduced, and the bladder had to be evacuated by manual pressure from the peritoneum and by various motions of the abdomen. Some time later the seminal fluid could not be ejaculated any longer. During the following fifteen months repeated attempts at catheterization was made but always without success. Finally, complete retention of urine necessitated an operation. This demonstrated an intussusception of the urethra. The first appearance of the intussuscepted urethra was that of a polypus in the bladder.

MILL.

Tuberculosis of the Testicle—S. P. DELAUP, *New Orleans Medical and Surgical Jour.*, July, 1908.

The first symptom is usually a feeling of weight and discomfort in the testicle, some tenderness of the part affected, seldom developing into pain until the disease has lasted rather a considerable time. The pain then felt is dull, aching; may extend up the cord to the groin or even be noticeable in the back. These sensations are usually intermittent, disappear on rest to return on exercise. The first sign of the disease is the appearance of a hard nodule at the lower part of the epididymis usually of slow but progressive

growth. This nodular induration later involves the entire epididymis, then the vas for a varying distance, and, lastly, the testicle itself. A urethral discharge usually exists, varying in quantity and character, usually small in amount, thin and milky, but may be profuse, purulent, or bloody. This discharge promptly ceases after excision of the tuberculous nodule. The vesical phenomena appear late as a rule and are of a mild character. The entire epididymis will be involved if the early removal of the local lesion is not undertaken. If the local process remains unattended, the nodules soften, break down, fluctuate, and the purulent contents may burrow into the tissues of the scrotum, or more often open spontaneously by one or more sinuses, which may discharge for months. PAGE.

FEMALE ORGANS OF GENERATION—PREGNANCY— PARTURITION—INFANTS

Dysmenorrhea caused by Dragging on the Peritoneum—H. SELLHEIM, *Monatsschr. f. Geburtshülfe u. Gynäkologie*, 1908, No. 6.

From Lennander's researches we know that the internal organs of generation do not cause pain. In abdominal operations the pains are called forth solely by the parietal peritoneum. This fact explains also the occurrence of dysmenorrhea by the dragging on the peritoneum. The menstrual contractions of the uterus in all instances of direct or indirect adhesions of the uterus and the parietal peritoneum, necessarily give rise to dragging of the peritoneum. The same dragging effect is produced by the ligaments connecting the uterus with the peritoneum. The dependency of dysmenorrhea upon peritoneal adhesions or abnormal shortness of the ligaments is demonstrated by the fact that menstrual pains do not occur after the ligaments have become stretched by pregnancy and parturition. MILL.

Tuberculosis of the Female Genitals—S. M. D. CLARK, *New Orleans Medical and Surgical Jour.*, July, 1908.

There are no pathognomonic symptoms of tuberculosis of the female genitals; this is especially true of the advanced or chronic forms. The clinical picture of tuberculosis of the vulva, the rarest form found in the genitals, begins usually with discoloration of the skin, with induration tending to spread. These masses are of variable shape and later break down and form ulcers, which latter have irregular and undermined margins, and are frequently found to be covered with a yellow crust. These ulcers, if unattended, will spread upon a large area, with the formation of sinuses and deep destruction of the external genitals. The differential diagnosis of

this disease is often attended with great difficulty and has to be reached by elimination. Carcinoma, syphilis, phagedenic chancroid are the diseases from which it is most difficult to differentiate. It is very rare that we find the cervix involved when we have tuberculosis of fundus of the uterus. The ulcerative type is the most common form found in the vagina and cervix; then next is the miliary type. The symptoms are not characteristic. Leucorrhea is present; occasionally some blood is found in the discharges. There is nothing characteristic about the ulcerations. In the diagnosis eversions, erosions, inflammatory and syphilitic ulcerations and carcinoma have to be excluded. The third in order of frequency of genital tuberculosis is the uterine fundus. Since the inauguration of the routine examination of all uterine scrapings the frequency of this form of tuberculosis has increased. The tubercle bacilli attack most frequently the fundus at the extremes of age. The persistent and stubborn forms of leucorrhea before puberty and after the menopause are very suggestive of uterine tuberculosis. Briefly, the symptoms may be said to be those of simple endometritis. The most important type of genital tuberculosis is that of the tubes. These structures seem to exhibit a selective affinity for the tubercle bacilli. The symptoms of tubal tuberculosis are practically those of salpingitis, with frequent pelvic peritonitis.

PAGE.

Early Diagnosis of Cancer of the Uterus—R. B. HALL, *Lancet-Clinic*, May 23, 1908.

The clinical history of the patient is of vast importance in making an early diagnosis of uterine cancer. Not one symptom pertaining to the menstrual function, or unusual vaginal discharge, should be neglected. An unusual vaginal discharge generally prevails for from one to five or six months before any bleeding between the menstrual periods is noticed. If a woman has arrived at the menopause she may have had the discharge for months before the first drop of blood was noticed. In many patients the discharge is more watery than the usual vaginal discharge, and is more irritating to the vulva. There is no offensive odor in the beginning. The offensive odor will not be produced until the tissues begin to break down, which is about the time of the first appearance of a small amount of blood, that is about four or six months after the initial vaginal discharge. An irritable bladder is very often complained of during the early period of uterine cancer. Pain is usually complained of six or ten months or longer after the first well-marked symptoms of cancer were observed. In cancer of the cervix, when the disease has advanced to the stage when the patient seeks relief on account of the pain, the affection has so far progressed

that a radical operation is useless. Cancer of the fundus of the uterus usually develops after the menopause. The condition is rarely seen during menstrual life. It is more prevalent in women who have not borne children, differing in that particular from cancer of the cervix, which is almost wholly confined to women who have borne children. Adeno-carcinoma is the form of disease most frequently encountered. It commences in the endometrium and invading first the epithelium or the glandular layer, or, in rare instances it is grafted upon a polyp. The progress of the disease is very slow in the beginning, gradually invading the uterine body by finger-like processes. Two, three or four years after cessation of menstruation the patient usually becomes annoyed by a slight watery vaginal discharge. This discharge is generally not offensive in odor for a year or more but irritates the vulva. After the discharge has continued for some months it stains the linen somewhat brownish, not bloody, yet not colorless. After the bleeding commences it is usually more persistent and more continuous than in cancer of the cervix. If the patient is examined ten months or a year after the beginning of the discharge the uterus will be found much enlarged in all cases, and occasionally to be as large as a small cocoanut, with the cervix perfectly normal. If a sound is introduced, the bleeding is very free, filling the vagina at once. Women do not develop fibroid tumors of the uterus after the menopause, and if the patient was the subject of a fibroid tumor before the menopause she would have given a history of that during the last few years of her menstrual life. There are cases of carcinoma of the fundus uteri which develop around the forty-fourth or forty-sixth year, which progress very slowly and which are rather difficult to diagnose. Such cases may be attended by irregular bleeding with slight enlargement of the uterus. Careful curetting may fail to detect cancer. These cases should be kept under observation and the curetting repeated as soon as the bleeding returns, until they are cured or until malignant disease is detected.

PAGE.

Intra-Uterine Diagnosis of Hydrocephalus—S. HAMMERSCHLAG, *Monatsschr. f. Geburtshülfe u. Gynäkologie*. 1908, No. 4.

The complication of parturition by hydrocephalus is very serious, as the mothers succumb in 20% of the cases. The early intra-uterine diagnosis of hydrocephalus is therefore important and may prove life-saving in many instances. The author reports two cases erroneously taken for hydrocephalus but after perforation and cranioclasty it was found that the heads did not exceed normal size. Owing to defective ossification the fontanels were abnormally broad. To avoid such mistakes the author advances the following char-

acteristic points for differential diagnosis. (1) The diagnostic value of the abnormal size of the mothers abdomen is very limited, as it may be due to ascites, tumor, twins, etc. (2) The non-occurrence of ballottement of the fetal head is a very uncertain symptom, as it depends entirely upon the amount of liquor amnii. (3) The parchment-rustling, as observed in instances of thin abdominal walls, is no rare occurrence under other conditions. (4) The retention of the head above the brim of the normal pelvis may be due not only to hydrocephalus but also to a large amount of liquor amnii, weak labor pains, etc. (5) The size of the head before it is engaged in the pelvis, cannot be properly estimated. (6) The sounds of the fetal heart are of little diagnostic value, as their frequency may be increased in some cases, and, on account of brain-pressure, decreased in others. (7) The palpation of broad fontanels is no positive symptom for hydrocephalus, as these may be due to defective ossification. (8) The manual examination for hydrocephalus in utero is possible only when the mouth of the uterus is completely opened to permit the entire hand of the examiner. This precludes an early recognition, and it is a dangerous method as it may cause rupture of the uterus. (9) The greater inflexion of the cervical region is not characteristic of hydrocephalus. The author concludes that a combination only of all the methods of examination may permit a definite diagnosis, and that there is but one single symptom which alone points to hydrocephalus, namely the retention of the fetal head in the pelvis after the trunk has been born.

MILL.

Pyelitis in Pregnancy and Puerperum—H. N. VINEBERG, *Am. Jour. of Obstetrics and Dis. of Women and Children*, June, 1908.

Pyelitis occurs in from 4% to 6% of pregnancies. In the majority of instances it sets in during the latter half of pregnancy and, according to its causative agents, may be divided into four varieties, viz., (1) gonorrheal, (2) pus-cocci, (3) colon bacillus infection, (4) tubercular infection. Two clinical forms are seen differing in their onset. In the one, symptoms from the bladder are the first manifestations as frequent and painful micturition with burning over the bladder region; the other clinical form begins as an acute infection with chills, septic temperature and a pulse rapid, but not so in proportion to the fever. The patient gives the impression of being very ill. The chills may be repeated daily. The pain which is at first over the lower abdominal region, in the course of three or four days, becomes localized over the kidney region. This becomes painful to pressure, but as a rule is not found to be enlarged. At this time the urine which at first showed but a trace of albumin becomes turbid and contains pus in large amounts, a few blood corpuscles and occasionally hyaline and granular casts. Caudate cells are some-

times present and albumin occurs usually in proportion to the pus. Bacteria are present in large quantities. As a rule the colon bacillus predominates. Tenderness over McBurney's point as described by many writers was not present in the authors cases, but tenderness on vaginal examination of the thickened ureter as it enters the bladder across the anterior vaginal wall was sometimes present. Acute appendicitis, acute cholecystitis, typhoid fever, acute salpingitis, retained dead fetus and pleurisy have all been mistaken for pyelitis. Acute appendicitis is rather rare in pregnancy and is seldom ushered in by chills. By the time the pain of pyelitis has become localized over McBurney's point it is also localized over the kidney region. The urine later gives positive evidence of pyelitis. In acute cholecystitis there is usually a history of previous attacks. The prognosis is good, the disease usually running a course of seven to fourteen days but it occasionally persists for months and may recur during subsequent pregnancies. SACHS.

Diabetes Mellitus and Pregnancy—A. SCHOTTELIUS, Münch. med. Wochenschr., 1908, No. 18.

The prognosis of diabetes mellitus in the pregnant is very unfavorable for child and mother. From 33% to 50% of the children perish, and many mothers succumb in coma post partum. A case of the author's (arrived in a comatose state and died half an hour after accouchement forcé) gives him the occasion to argue the advisability of interrupting pregnancy when associated with diabetes. He concludes that, if internal medication fails to influence the diabetic condition, the interruption of pregnancy, as recommended by Hofmeier, Fellner and Born, may be resorted to. ZIMMER.

Primary Abdominal Pregnancy—J. LOVRICH, Monatsschr. f. Geburtshilfe und Gynäkologie, 1908, No. 6.

There are three forms of ectopic gestation, tubal, ovarian and abdominal. In as far as the mucosa forms the only proper nutritive soil for the embryo many observers deny the possibility of a primary abdominal gestation. Others admit this possibility, asserting that the ovule may adhere not only secondarily but also primarily to the peritoneum. The absence of any connection of the amniotic bag with the tubes and ovaries are the criterion of a primary abdominal pregnancy. MILL.

Melena Neonatorum with Report of a Case Cured by Transfusion—S. W. LAMBERT, Med. Rec., May 30, 1908.

Twelve hours after birth of a girl a thickened, dark-colored spot was noticed on the right side of the tongue which was thought to be a nevus, but which has cleared up since and was undoubtedly a hematoma. Three hours later the baby's temperature was 102.2

degrees F. Her temperature at 4 P.M. the following day was 103.4 degrees F. She grew markedly paler, cried continuously, and began to bleed slowly but steadily from the nose, and a hematoma appeared in the scalp behind the left ear. In the evening this subcutaneous bleeding had very considerably extended, and the bleeding from the nose was continuous and quite profuse. The temperature was 102.3 degrees F., a dark meconium stool gave a very positive reaction for blood, but the urine was of normal color. The baby was of waxen pallor. The diagnosis of melena was made. The day following the baby did not seem to grow worse so rapidly. The scalp hematoma and the paleness increased; but the temperature declined from the maximum (104.4 degrees F.) to 97.4 degrees F., the nasal bleeding became less constant, and the baby nursed regularly. Two days afterward, in the morning, the case seemed hopeless, and it was decided to attempt a direct infusion of blood from the father of the infant by end-to-end anastomosis of the two blood-vessels after the manner devised by Carrel. The right popliteal vein of the baby was sutured to the left radial artery of the father, and enough blood was allowed to flow into the baby to change her skin from a pale transparent whiteness to a brilliant red color. She began to cry lustily. The blood from the wound in the leg began to run freely and clotted promptly. The nose bleed stopped instantly. The pulse became full and strong and slowed down, and the respirations were deep and full. Since the ending of the transfusion there has been no hemorrhage, no vomiting, and no diarrhea. There was no evidence of hemolytic action at any time, and all the symptoms of melena ceased at once. The next morning the baby weighed fourteen ounces less than at birth. She has gained steadily since. The stools became of normal character two days after the operation. The striking point in this case is that the disease ceased suddenly, and the child has been cured from the moment of the transfusion of blood. The condition was easily differentiated from the other forms of hemorrhage to which the newborn are liable. The essential points were the early nosebleed, the rapidly increasing pallor and anemia, the febrile action, and the restlessness followed by the characteristic bloody vomit and stools and the subcutaneous ecchymoses.

WESTERN.

Pyloric Stenosis in Infancy—J. F. MORAN, *Am. Jour. of Obstetrics and Diseases of Women and Children*, June, 1908.

The clinical manifestations of this condition vary according to the degree of stenosis and the cause, that is, whether it is due to hyperplasia or simple spasm of the sphincter muscle. In the former case the symptoms are more constant. Sudden projectile vomiting beginning a few days after birth or not later than two or three

weeks, rebellious in character, becoming more frequent as time advances is the first and most constant symptom. The stomach contents may be rejected immediately after feeding or may accumulate for three or four feedings before being vomited. The vomiting is frequently preceded by nausea and pain. Bile is usually absent, the tongue is clear and the breath inoffensive. The vomiting quickly reduces the infant to a state of marasmus. Gastric peristalsis and gastric tumor are, when present, two positive signs of the condition. Gastric peristalsis which is present in 25% of the cases manifests itself by a wave-like contraction from left to right. The gastric tumor is felt on deep palpation about one-third the distance between the umbilicus and right costal border. It appears to the touch as a small tumor about the size and shape of the last phalanx of the little finger. It was present in nineteen of a series of twenty cases. Obstinate constipation producing a flat sunken lower abdominal region with a distended epigastric region is very suggestive. In cases due to pyloric spasm there may be intervals in which normal stools are present. Congenital atresia must be differentiated by the greater gravity of the symptoms from the beginning, being rapidly fatal within the first week. Complete obstruction of the lower intestines is characterized by the presence of bile in the vomitus, distended abdomen and retention of meconium.

SACHS.

Bibliography

A TREATISE ON DIAGNOSTIC METHODS OF EXAMINATION. By PROF. DR. H. SAHLI, of Bern. Edited, with additions, by FRANCIS P. KINNICUTT, M. D., Professor of Clinical Medicine, Columbia University, N. Y.; and NATH'L BOWDITCH POTTER, M. D., Visiting Physician to the City Hospital and to the French Hospital; and Consulting Physician to the Manhattan State Hospital, N. Y. Philadelphia and London: W. B. Saunders & Company.

Truly, a monumental work, this, the *magnum opus* of a sincere and unassuming master-clinician. The book is not a mere compilation of "diagnostic methods of examination," as its modest title would suggest, but the depository of the results of a vast, varied and ripe personal experience in the almost boundless field of medical diagnosis. A brief review, which the limited space at our disposal necessitates, cannot possibly do justice to so magnificent and complete a treatise. The enormous material is placed before us in twenty-eight subdivisions, an appendix and a supplement. To show the thoroughness of the work, I choose at random one of the subdivisions, "the examination of the skin," in which is discussed: Color of the skin; moisture of the skin; sweat excretion; swelling and edema of the cutaneous and subcutaneous tissues; emphysema of the skin; cutaneous hemorrhages; collateral circulation in the skin; trophic affections of the skin; acute exanthemata; cutaneous diseases; dermatitis medicamentosa, and other cutaneous manifestations important from the diagnostic standpoint.

For many years to come Sahli's will be *the* standard work on diagnosis.H. S.

A TEXT-BOOK OF PRACTICAL DIAGNOSIS. *The Use of Symptoms in the Diagnosis of Disease.* By HOBART AMORY HARE, M.D., Professor of Therapeutics in the Jefferson Medical College of Philadelphia. New (6th) edition, thoroughly revised and rewritten. Lea & Febiger, Philadelphia and New York, 1907.

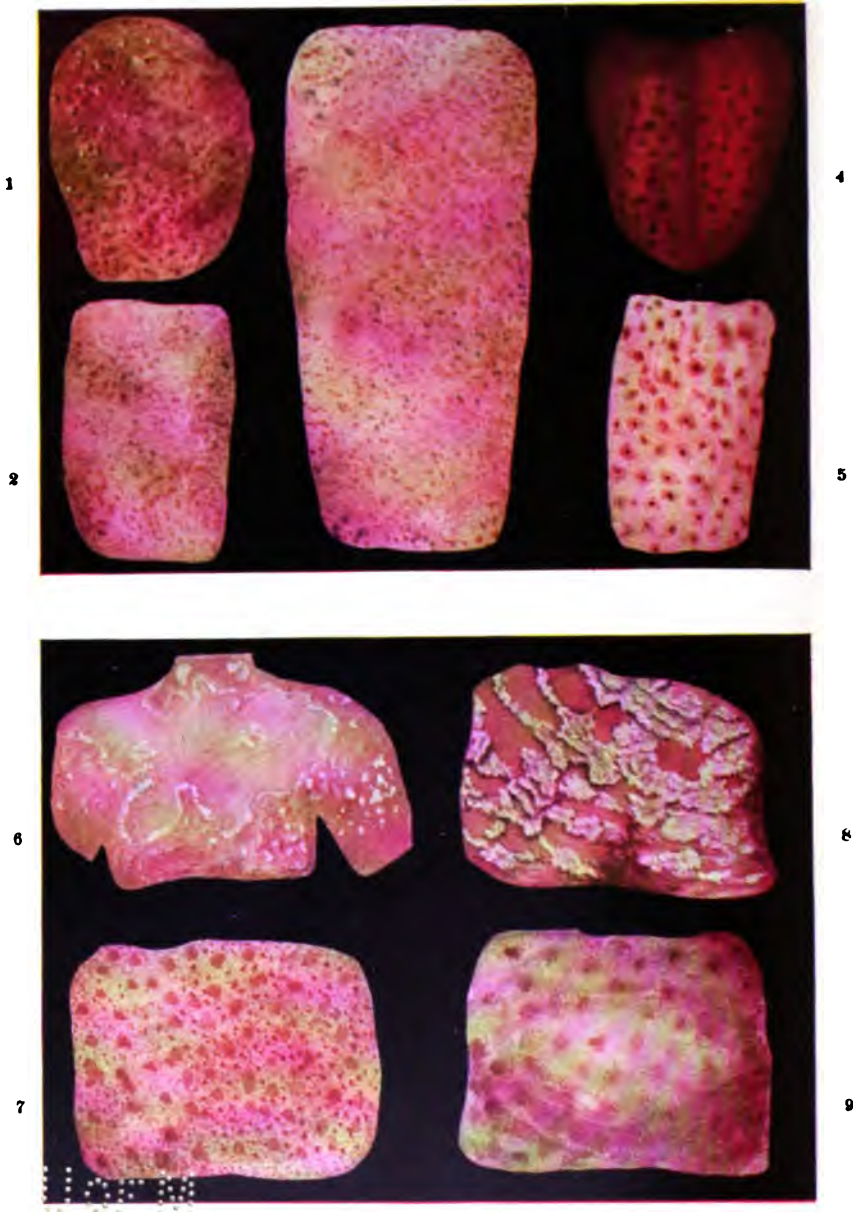
In his report which a boy brought home from school there was the little item: "mathematics . . . insoluble." The teacher had no words strong enough to express what he considered the utter inaptitude of the pupil for this branch of science. This occurred in 1880. Meanwhile that boy has become one of the great mathematicians of the age, and, to be sure, a sworn enemy of his old teachers' abstruse, incoherent and dogmatic method of instruction, which had nearly succeeded in making him the apprentice of a cobbler or a hatter.

That boy "got there" because it was "in him," and, by the same token, many a physician will become a fair diagnostician via the cumbersome road of autodidacticism. But why is the average practitioner such a mediocre diagnostician? Simply because his study of diagnostics was unsystematic, incoherent and a makeshift all around, and because his teacher, that clinical humdrum, out of sheer habit and mental diffidence hardly ever failed to put the therapeutic cart before the diagnostic horse.

Hare's "Practical Diagnosis" does away with this *laissez-aller*, *laissez-nous faire* in the study of diagnosis. It is not the usual exposé of the diagnostic features of the various diseases, generally encountered in the textbooks on diagnosis, which the author offers, but a systematic discussion of the symptoms used in diagnosis, and of their employment in arriving at the proper understanding of the nature of the case under examination. In practice, a diagnosis can only be constructed by grouping and regrouping the symptoms, and with this idea in mind the entire book has been written. A number of very useful illustrations materially enhance the value of the work.

H. S.

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THE DIFFERENTIAL DIAGNOSIS OF SCARLET FEVER AND THE
SCARLATINIFORM ERUPTIONS

By Godfrey R. Pisek

1. Scarlet Fever Rash showing Sudaminal Vesicles. 2. The Fading Scarlatina Eruption.
3. Scarlatina Eruption, early Stage. 4. Typical Scarlet Fever Tongue. 5. The Scarlet Fever Rash, magnified. 6. Scarlet Fever Desquamation. 7. The Scarlatinal Form of Rubella.
8. Acute Exfoliative Dermatitis. 9. Erythema Infectiosa.

THE ARCHIVES OF DIAGNOSIS

A QUARTERLY JOURNAL DEVOTED TO THE STUDY
AND THE PROGRESS OF DIAGNOSIS AND PROGNOSIS

Vol. I

OCTOBER, 1908

No. 4

Special Articles

THE DIFFERENTIAL DIAGNOSIS OF SCARLET FEVER, WITH SPECIAL REFERENCE TO THE SCARLATINI- FORM ERUPTIONS

By GODFREY R. PISEK

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New York .

Notwithstanding the recent notable advances that have been made in bacteriology, little or no progress has been made in establishing the etiological factor in scarlet fever, in spite of the enormous amount of research work that has been devoted to it. Undoubtedly if the causative agent could be isolated and studied, a renewed interest would be generated in this disease and a more satisfactory method of diagnosis and treatment mapped out. Meanwhile we can clinically study with care and minuteness the phenomena of this widespread disease, and thus perfect our ability to make an accurate and an early diagnosis. This is a necessary requirement, for the disease is treacherous and dangerous. Its complications only too often leave their permanent mark upon the patient. The infection may have been made possible from a false sense of security obtained, following an error in diagnosis; in other words, the stamp of immunity may be placed upon an individual, who subsequently may expose himself to scarlet fever with dire consequences. Likewise much injustice may be done by confusing an erythema for example, with scarlet fever.

A child may be, in the case of the poor, sent to a hospital for contagious diseases and unjustly exposed to virulent cases. From a material standpoint, financial loss may be occasioned by the quarantine regulations involving the patient and the family. How far reaching might be the consequences of a mistake in the household of a dairy farmer, goes without the saying. The health officer who is called upon to decide the suspicious case for the conscientious practitioner, is usually inclined to act on the assumption that the disease is scarlet fever and usually rightly throws his influence for the benefit of the public and against the patient.

It will be the purpose of this article to emphasize the features which have been distinctly helpful to the writer in making the diagnosis and differentiating the true disease from the confusing scarlatiniform erythema.

At the outset it should be clearly understood that the diagnosis should not be founded on the rash alone. The history and all the clinical data obtainable should be taken into consideration. Further it should be recollected that mild types of scarlet are quite as dangerous as the more serious types. If the examiner then approaches the patient with the salient features of scarlet fever and its congeners in mind; and proceeds systematically in his examination, the differentiation can be more readily and satisfactorily made. It would be superfluous to burden you with a lengthy word picture of scarlet fever. Only such symptoms and descriptions of phenomena will be given as are helpful in the differential diagnosis.

The average simple case of scarlet fever will be characterized by its abrupt onset, initial vomiting, sore throat, disproportionately rapid pulse rate, palpable tender glands, and a rash which appears usually within twenty-four hours, after the initial symptoms. During defervescence we observe the "raspberry tongue" and later the desquamation. If this description applied to all cases, my efforts would be unnecessary; but we know that the infection may vary in its severity, from the so-called mild type, to the toxic or rapidly fatal variety. The symptoms that are of considerable diagnostic import to us in the initial stage, are the vomiting, the angina and the rash. Vomiting occurs with greater frequency in the beginning of scarlet fever than in any other of the eruptive diseases. Careful examination of the throat at this time will show a well-marked congestion of

the velum, of the palatine arches and the tonsils, which also may be somewhat hypertrophied. Sometimes with a good light, one is able to see fine puncta on this congested background. The constancy of this scarlet fever throat is what marks it as a distinct aid, for otherwise there is nothing particularly characteristic in its appearance. The tongue will appear thickly coated and is of no aid in the early diagnosis, until the papillæ begin to enlarge.

THE RASH

The development of the rash usually after twenty-four to forty-eight hours, offers considerable information of value in differentiating scarlet fever from the confusing erythematous eruptions. The examiner should place his patient in a good white light. A magnifying glass and a glass slide, such as is used for blood and sputum, will be found to be exceedingly helpful in studying the exanthem. The rash first makes its appearance on the sides of the neck, upper part of the chest and face; thence spreads to the arms, upper part of the back and finally involves the trunk and lower extremities. Its color is not scarlet, but a dull red, almost a brownish red (Fig. 3). This color varies proportionately to the fever, being more marked usually in the evening. The general characteristics of this rash about to be described, will always be found present in a true case of scarlet fever, even though certain modifications or variations are observed. Close inspection of the rash resolves it into two factors, which are constantly present: (1) An erythematous background; (2) small, deep-red, injected puncta (Fig. 5). Sometimes variations in the rash just described are present which give a diffuse, a mottled or a speckled appearance. These changes are caused either by the closer merging or by the non-extension of these puncta with their erythematous areola. A normal or pale flesh tint is seen on pressure with a glass slide early in the disease, while later there is a dirty, yellowish-red pigmentation. Itching is quite a constant symptom, but is more marked when many groups of miliary vesicles are present. At the height of the eruption, it is often possible to find small pin-point, conical, whitish vesicles, with a serous content over the chest and lower abdomen (Fig. 1). When they occur in groups about the axillæ or in the groins, they are quite confirmatory from a diagnostic

standpoint. The harsh, uneven feel which the rash occasionally gives to the hand passed over the skin, is due to papular or even vesicular elevations occurring at the sites of the hair follicles. This papulation affords another valuable aid, as it does not disappear with the erythematous rash, but the roughness of the skin persists after it has faded.

Certain regional characteristics are present in this exanthem, which, if appreciated, tend to help the puzzled physician. The face, for example, shows the true rash only on the temples; the cheeks are profusely red, but the nose, chin and upper lip appear unduly pale, causing a circum-oral pallid ring which should be sought for in suspected cases, as it is not present in the counterfeiting rashes.

The flexor surfaces of the joints deserve careful scrutiny and special mention. These regions rarely exhibit the characteristic rash; they are apt to be the site of petechial hemorrhages or else they have a blotchy appearance.

If the palms and soles are examined with the magnifying glass, no puncta are seen, only a simple erythematous blush.

DESQUAMATION

In the exfoliation of scarlet fever we expect to find it occurring in the order of the appearance of the exanthem. At first there are observed fine discrete scales in the infra-clavicular and episternal regions (Fig. 6). These scales are made up of the epidermal covering of the above-described puncta and vesicles. When desquamation first occurs flakes having a perforated centre are cast off. This is known as "pin-holing." These scales are quite characteristic and have often assisted the writer in fixing the diagnosis at this stage of the disease. Later, and continuing for five to seven weeks, the skin becomes rougher, throwing off irregular rings of desquamation of varying extent. The large strips of epithelium and casts of the hands and feet which are sometimes shed or torn away are more often seen in those subjects who have a skin of coarse texture.

Another diagnostic feature of this stage of desquamation is seen in the finger nails. If the pulp is pushed back from the nail, there will be seen just beneath its free border, a scaling or cracking line which extends up to the fingers. Four to five weeks after the begin-

ning of the disease, we may find a transverse linear groove sometimes with a corresponding ridge, which shows itself on the roof of the nail. The thumb nail exhibits this condition better than the fingers. These nail changes serve as corroborative evidence in the subsequent diagnosis, and this desquamation may be seen on the nails when other evidences are not found elsewhere. On the other hand it must not be forgotten that the desquamation may be so slight as almost to escape notice. Unfortunately, desquamation alone is often regarded as sufficient evidence of the disease, and a diagnosis is based thereon. It seems to me that, in view of the fact that so many of the erythematous eruptions produce skin exfoliation, we are not justified in this conclusion, unless we have (1) the regional involvement, (2) the pin-holing, and (3) the nail changes, plus other pertaining clinical symptoms.

A close study of the tongue and the blood is worthy of our purpose of differentiation. The tongue in the first days is usually thickly coated, and the papillæ are obscured, but as the tongue clears up at the edges and tip, we can observe the enlarged papillæ (Fig. 4), which become more and more prominent, and show at their best about the fourth day. The lingual mucous membrane now begins to exfoliate; the tongue becomes red, dry and glistening. It is in the post-eruptive stage that this feature is particularly of diagnostic importance.

The blood in scarlet fever has been carefully studied, and may be of service in obscure cases, as an additional confirmatory link. The red blood cells are gradually diminished throughout the course. A leucocytosis is present a day or two before the appearance of the rash, and the normal is regained only in convalescence. We have found this leucocytosis to be proportionate to the severity of the angina. The polynuclears are increased and the mononuclears decreased, both relatively and absolutely. To the eosinophiles we may look for some rather characteristic variations. In the initial stages they may disappear almost entirely, while in deferescence, and later to the sixth or seventh week, 8 to 12 per cent. may be counted.

The Erythemata. Erythematous eruptions which may simulate the rash of scarlet fever are quite common; and if a careful examination and study of the rash is not made, weighing with it all the clini-

cal evidence, mistakes are easily made. The simple form of erythema results from external irritants, while the exanthem of angio-neurotic origin results either from systemic disturbance, ingestion of certain drugs, or from specific poisons. These fortunately have certain characteristics which should be borne in mind by the examiner, for while we are not always able to distinguish them one from the other, the differentiation from scarlet may be thus made possible.

One of the striking features is the tendency to recurrence, and undoubtedly many of the so-called second and third attacks of scarlatina have been in this class. In a general way these dermatoses are distinguished by the following peculiarities:—They may appear in any region of the body—at one time there may be present in the erythema elements of the various exanthemata. Their type may rapidly change so that they may be scarlatiniform one day and morbilliform the next. The puncta seen in the scarlet fever exanthem are absent. Desquamation is coarse and flaky and recurrences are frequent.

Erythema Scarlatiniforme. This is a non-contagious dermatitis, simulating scarlet fever in its cutaneous manifestations. It is liable to occur secondarily to other infectious diseases and to medicinal and food intoxication. As it is important to differentiate the disease from scarlatina, its distinguishing features will therefore be given.

This erythema spreads very rapidly, sometimes reaching its height in a few hours. Patches of erythema may alone be present. Under the glass there is no uniform redness. The face is rarely involved and the tongue shows no "raspberry" appearance. The fauces may be red but are not swollen. Desquamation takes place at an early date after the erythema, sometimes on the second day; it is a quick process and the scales are large, abundant and furfuraceous. The course is brief, and there are no complications or sequelæ. Such a clinical picture especially in a person who has given a history of previous similar attacks, should exclude scarlatina. A scarlatinoid erythema may follow the use of such drugs as belladonna, quinine, chloral, chloretone, salicylic acid, antipyrin, digitalis, opium or veronal, especially in those patients having a drug idiosyncrasy. These eruptions almost invariably follow very quickly after the ingestion of the drug. We have seen it occur within an hour after

a dose of antipyrin. The close relationship to the drug taking, is a diagnostic feature of considerable value. Belladonna rashes are perhaps most often seen. This eruption is usually confined to the face, neck and chest and is only rarely generalized. It fades quickly and is rarely followed by any desquamation. The absence of fever, the dilated pupils, the evanescent rash and the history should cause no confusion.

It is well to recollect that drug rashes in general, and in contrast to scarlet fever, appear for the most part on the extensor surfaces of the extremities, and if they be present on the face, then the circum oral ring is not observed. Moreover they are not associated with fever, angina or adenitis. If any doubt still exists, the repetition of the dose of medication under suspicion should be given to reproduce the erythema.

Acute Exfoliative Dermatitis. Another disease which may raise a veritable doubt in the stage of efflorescence or in the desquamative period is acute exfoliative dermatitis. It differs in that the constitutional symptoms are more pronounced than in scarlatinoid erythema, while the eruption appears as a general hyperemia very soon covering the entire body. The exfoliation follows in a day or two and is general in character and intensely profuse; large papery strips being cast off (Fig. 8). The nails and hair may drop out before the process is complete.

Another disease which necessitates correct interpretation, is the *scarlatiniform variety of rubella*; fortunately this is not a common type (Fig. 7). Close inspection of the rash will disclose morbilliform characteristics. The mild constitutional symptoms and the enlarged post-cervical glands of rubella will define it.

Serum Rashes. The use of antitoxic serum may be productive of a scarlatinoid rash that is very puzzling. This is especially true when anti-diphtheritic serum has been injected. The angina of the diphtheria is already present and cannot assist us, while fever and malaise supervene. We must then depend upon the following facts: That the rash frequently spreads from the site of the injection; that these rashes are often polymorphous in character and fleeting in duration. They appear on the third or fourth day, the eruption occurs usually in patches and only rarely appears on the face. A well-marked enlargement of the superficial lymph glands in the

inguinal, axillary, and epitrochlear regions will also help to distinguish this rash from scarlatina.

Those of us who are doing work in children's hospitals, are struck with the number of cases of scarlatinal infection, which occur in the surgical wards. Open wounds and especially burns are liable to direct inoculation. Many of the so-called cases of "surgical scarlet" of the older writers were probably scarlatinoid erythemas or what we now recognize as septic rashes. The necessity for the removal of such suspected cases from the wards is often a serious question. For our guidance in differentiation the wound is of considerable help: an erstwhile healthy wound may begin to look unhealthy, and an exudate may form upon it. The rash is very likely to first appear at or near the wound. The nearest lymphatic nodes will be found tender and enlarged. Vomiting may occur, but sore throat is rarely complained of. There are no characteristic changes in the desquamation.

The septic rashes which were referred to above, occur more often in early life, and either precede or accompany a definite septico-pyemia. Occasionally they may indeed be the first to call attention to the true condition of the patient. When the rash is small and macular, it may resemble scarlet fever. Its spotted character and the large macules which are seen on the extensor surfaces of the extremities with absence of puncta, fix the diagnosis (Fig. 9). A high leucocytosis would be confirmatory. From erysipelas, scarlatina can be distinguished by the shining glazed appearance and characteristic spreading.

The Fourth or Duke's disease is of interest in this connection because of its confusion with scarlet fever, provided we accept the dictum that attacks of the Fourth disease do not protect the individual against scarlet fever and measles. Cotton who had a good opportunity to study the disease, accepts it as an entity. The disease is described as differing from scarlet fever in its longer incubation period, absence of prodromal symptoms, such as vomiting, high pulse rate and severe angina. The rash itself shows but little difference except that it usually begins on the face and is not extensive. The desquamation, however, is profuse and out of all proportion to the exanthem. Renal complications do not occur.

DIAGNOSIS AT VARIOUS PERIODS

As the practitioner is often called upon to offer a diagnosis at different stages of the disease, the distinctly helpful phenomena to be observed at various stages in scarlatina will be given.

Pre-Eruptive Stage. Here the diagnosis is only rarely possible and then it can be made only in the presence of an epidemic and a history of contagion. The sudden invasion with an angina, bright red puncta seen in the roof of the mouth, and initial vomiting without satisfactory cause, may be symptoms anteceding the eruption.

Eruptive Stage. The diagnosis is at this period rarely obscure. The vomiting, high pulse rate, characteristic punctate rash, congested fauces and evidences of the "raspberry" tongue are usually conclusive.

Pre-Desquamative Stage. The rash has faded or disappeared, and desquamation has not yet begun. Here the distinctively glazed, papillated tongue and the injected fauces are seen. The enlarged lymph-nodes beneath the maxilla are tender to the touch. The skin looks dirty yellow under a glass slide and has a distinctly dry and uneven feel. Sudamina or miliary vesicles may be present in groups.

Desquamative Stage. When the disease is seen late, exfoliation beginning on the face, may be found on the fourth to the sixth day of the disease, and on the neck and chest about the twelfth to the fourteenth day. This possibly serving to differentiate it from the scarlatiniform erythemas. "Pinhole" scaling on the body and the lines on and beneath the finger nails strengthen the diagnosis. It is not uncommon to find still further corroborative evidence at this stage in complications of the kidneys, joints, in the ear or in suppurating cervical glands.

In spite of our closer clinical study there will still remain a few indefinite cases that will require isolation for safety and time for further observation. Without more definite bacteriological aid we must to-day place our reliance on a clear conception of the differential diagnosis.

THE DIAGNOSIS AND CLINICAL SIGNIFICANCE OF
ALIMENTARY ALBUMINURIA

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Chicago

DEFINITION AND NOMENCLATURE

The term alimentary albuminuria is here employed analogously to the term alimentary glycosuria to indicate the passage of native food albumin, as such, unchanged, from the alimentary tract into the urine.

In the form of albuminuria under discussion the kidneys are, as a rule, healthy and the passage of food albumin is not generally accompanied by the passage of serum albumin. It is possible, of course, that alimentary albuminuria may occur in a patient incidentally afflicted with nephritis,¹ in which case both albumins would appear in the urine. But the existence of a nephritis is by no means a contributory nor in any case a determining cause of the passage of native albumin.

PATHOGENESIS

It is generally taught that any albumen taken by mouth undergoes thorough disassimilation (proteolysis) into simpler bodies in the stomach and intestine, the process involving conversion of the complicated albumin molecule, which is colloid in character, into smaller molecules most of them crystalloid in character and readily passing into the intestinal wall by diffusion and osmosis. It is also generally taught that the latter products undergo reconversion into serum albumin while in the intestinal wall and before they pass into the portal blood vessels; and it is universally conceded that the leucocytes play an important part in this peculiar synthetic regeneration. The postulate, therefore, that a foreign albumin as such should filter through the intestinal wall into the blood stream beyond to reappear unchanged in the urine violates accepted physiological conceptions.

¹It is an established fact that long-continued alimentary albuminuria produces some irritation of the epithelia of the convoluted tubules of the kidneys.

From time to time in the past and dating as far back as 1839, different clinicians have reported the occurrence, in otherwise healthy subjects, of albuminuria following the ingestion of exceptionally large quantities of albumens—meat, eggs, milk, gelatine, cheese. The findings of all these observers were usually interpreted to signify that the large amount of albumin led to gastrointestinal derangements with the formation of abnormal decomposition products in the gastrointestinal tract that, being absorbed into the blood stream, irritated the renal epithelia and led to serum albuminuria. Here and there the rather vague theory was put forward that “reflexes” were transmitted to the blood vessels of the splanchnic area causing circulatory disturbances in the kidneys with resulting albuminuria; and that the genesis of these reflexes was irritation of the gastrointestinal mucosa by excessive quantities of albumin or their first degradation products. Here and there, finally, a clinician advanced the apparently paradoxical hypothesis that some of the food albumin passed through the intestinal wall as such into the blood and thence into the urine.

Any solution of this important phenomenon was rendered particularly difficult by the inability to identify small quantities of the different albumins that might appear in the urine. Various attempts in this direction were made. Purely chemical reactions did not answer for purposes of differentiation. Fractional precipitation tests, solubility tests, coagulability tests, polarimetric tests, etc., etc., while answering to a certain degree for large quantities of albumin were inefficient when one was dealing with traces only. It was not until within recent years that the discovery of specific biologic tests for different albumins rendered the solution of this problem approachable with some hope of success.

DIAGNOSIS

Using the alimentary albuminuria following the ingestion of large quantities of white of egg as a prototype, the method of performing the precipitin reaction may be briefly described as follows:

It is well known that the injection of an albumin into the peritoneal cavity of an animal produces certain changes in the serum of this animal that render the latter specifically precipitating

for the albumin that has been injected. If egg albumin is injected into the peritoneal cavity of a rabbit, then the serum of this rabbit acquires the property of forming, under certain technical conditions, a precipitate with egg albumin, but with no other albumin.

The outside of the egg is thoroughly scrubbed with a 1:1000 bichloride of mercury solution and washed with sterile water, alcohol and ether. With surgically clean hands the egg is grasped in the middle and each pole held for a few seconds over a small flame. With a sterile strong needle a hole is then punched through the heated area at each pole and the egg placed into a small sterilized funnel in such a way that most of the white of egg drains off into the funnel and thence down into a sterile flask containing some small glass beads. The contents of the flask is rapidly shaken and poured upon another little funnel, the stem of which is of such a caliber that it will not allow the glass beads to pass through. The violent shaking in the flask causes separation of membranes and shreds suspended in the white of egg so that the liquid filtering through the funnel is perfectly homogeneous and clear. Of this liquid 15 to 20 c.c. are injected under sterile precautions into the peritoneal cavity of a large rabbit. The animal is left alone for about a week and blood removed from one of the large veins of the ear according to the usual method. The supernatant serum in most instances is exceedingly sensitive to egg albumin.

In order to obtain a good reaction in the urine, it is necessary to have a large excess of precipitating serum. For this reason about 20 drops of the serum are mixed in a test tube of small caliber with 5 drops of the urine to be examined. That both liquids should be absolutely clear when they are mixed need hardly be emphasized. It is also a good plan to have some ordinary rabbit's serum for control and to prepare another series of test tubes containing 5 drops of the same urine mixed with 20 drops of normal rabbit's serum. The tubes are placed into an incubator at $37\frac{1}{2}$ deg. C. If the reaction is positive, a small ring of the precipitate will be found in the tube at the expiration of about one to two hours. As soon as the contents of the tubes is shaken the cloudiness will spread throughout the whole of the liquid. This method is very sensitive for even minute quantities of egg-albumen and the identification of egg-

albumin in the urine is exceedingly clean-cut by this method. A similar, although somewhat more complicated technique can be employed for other albumins.

CLINICAL SIGNIFICANCE

I have had occasion to observe this peculiar type of alimentary albuminuria especially in the following five conditions:

First, in motor insufficiency of the stomach of advanced degree, immaterial whether due to organic obstruction about the pylorus or to gastric ecstasy, atony or dilatation, especially if the motor insufficiency was combined with hypochlorhydria and hypochylia. One of the most marked instances of "egg albuminuria," almost regularly following the ingestion of 4 or 5 whites of egg, was seen in a typical case of achylia gastrica with serious motor insufficiency.

Second, in certain forms of intestinal indigestion (dyspepsia) with the appearance of abnormally large quantities of undigested food constituents in the stools and almost invariably associated with diarrhea.

Third, as a part phenomenon of the syndrome of hepatic insufficiency of advanced degree.

Fourth, very commonly after rectal feeding with raw egg, peptones (scil. albumoses) or milk.

Fifth, after the excessive ingestion of large amounts of albuminous pabulum. This form of alimentary albuminuria I have had occasion to see very frequently in diabetics living on a copious albumen-fat diet and in patients undergoing forced feeding as an incident to a mast-cure.

An explanation of the occurrence of alimentary albuminuria in all these different conditions, it appears to me, can be offered on a uniform basis as follows:

Whenever albuminous food remains for a long time in contact with the gastrointestinal mucosa *in an undigested form*, or whenever egg albumin passes throughout the length of the small intestine into the large intestine in an undigested form, then a portion of this native albumin is absorbed into the portal circulation and promptly excreted as a foreign body from the blood into the urine. This may occur either in gastrointestinal insufficiency, particularly with a

deficit of digestive ferments, or in diarrhetic disorders in which the enteric contents is propelled so rapidly into the large intestine that the normal degradation of the food-albumens into simpler bodies cannot take place before the fecal material reaches the ascending colon. Or it may finally occur when quantities of albumin too large for proper disassimilation within the normal time are taken into the stomach, or when such large quantities are injected directly into the rectum.

That this contention is presumably the correct one is made manifest by the following interesting therapeutic test. If, namely, large quantities of pancreatic ferments combined with an alkali are given by mouth in the above mentioned cases of motor insufficiency, or by rectum when large egg-albumin clysmata are administered, then, as a rule, the albuminuria promptly disappears. In the first instance we must assume that pancreatic digestion is hereby transferred into the stomach (in which peptic digestion is in abeyance) and that, as a result, the proper disassimilation of the albumins occurs,¹ in the latter instance similar conditions are brought about artificially in the rectum and colon.

The occurrence of alimentary albuminuria in hepatic insufficiency bears out the contention that the liver is intended to arrest and disintoxicate any foreign, presumably toxic, albumens carried to it in the portal vein. This idea is strengthened by a series of experiments that cannot be discussed in detail in this place, all intended to illuminate the path taken by the absorbed native albumins in their passage from the intestine via the portal circulation into the urine. By means of the precipitin reaction it can be shown without difficulty that, in animals, after the injection of large quantities of egg-albumen into the rectum or into a loop of intestine the blood of the portal vein invariably contains egg-albumin, whereas in a certain proportion of these cases the blood leading from the liver does not give the precipitin test, or gives it very feebly, while, again, a maceration of liver cells in such cases will, as a rule, always be found to give the specific albumin test. The liver,² in fact, generally contains egg-albumin for several days after the injection is made,

¹Here and there in hypochlorhydria with motor insufficiency the administration of large doses of HCl has accomplished the same result.

²The muscles also often contain egg-albumin, thus very strongly sug-

and apparently either digests it or gives it off very slowly to the general circulation; hence the relatively small amount of albumen in the urine and the long duration of the egg-albuminuria. This finding seems to demonstrate that one of the liver functions is to arrest native albumins that filter through the intestinal wall, thus protecting the organism at large from the circulation of foreign, hence toxic, albumins and either relieving the kidneys to a certain extent of the task of ridding the organism of such poisonous bodies or regulating this task in such a way that the minimum of damage is done to the kidneys. No wonder then that in hepatic insufficiency this disintoxicating function of the liver becomes inadequate and that absorbed native albumin passes unhindered through the hepatic filter into the circulation beyond, only to reappear promptly, with detriment to the renal epithelia, in the urine.

From the standpoint of life insurance the recognition of alimentary albuminuria is, of course, of the greatest value. I have no doubt that many applicants for life insurance are unjustly rejected on account of the discovery of albumen in the urine that is not serum albumen at all. Nothing may be wrong with the kidneys and a little attention to the gastrointestinal tract (see below) would have caused the prompt disappearance of albumin from the urine. Such cases as a rule are decidedly good risks and should not be rejected.

Nevertheless it should always be borne in mind that the passage of native albumin through the renal filter (especially if continued for a long time as e.g. as continued experimental injection of egg albumen into the circulation), is never an indifferent procedure. For it can be shown very clearly in animals that, together with an alimentary albuminuria, there occurs in the course of time a serum albuminuria and globulinuria from definite pathological lesions in the kidneys characterized especially by degenerative changes about the epithelial lining of the tubuli contorti.

It is not intended within the narrow scope of this article on the Diagnosis of Alimentary Albuminuria to enter into the treatment of this condition. The results are in the main very satisfactory.

The point I wish particularly to emphasize is that one should learn to recognize the existence of a distinct and well characterized gesting an analogy with the storing and slow liberation of glycogen by these two organs.

form of albuminuria of rather favorable prognosis that is not due to a nephritis of toxic or infectious origin, that is not due to circulatory disturbances in the kidneys, that is not due to general cardio-renal disease (Bright's disease in the modern sense), but that is due primarily to digestive disorders of a certain type. We are dealing here with an exclusively *enterogenous albuminuria* in the interpretation of which the renal idea proper should be largely relegated to the background and in which treatment should not, as in Bright's disease, be directed chiefly against disturbances about the general metabolism and the cardio-vascular apparatus, but alone against a well characterized perversion of the gastrointestinal and hepatic functions.

THE SENSE OF WEIGHT IN THE AFFECTED SIDE: ITS VALUE IN THE DIAGNOSIS OF LOBAR PNEUMONIA

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The diagnosis of a fully developed pneumonia is generally very easy, yet all of us know that cases of well-marked pneumonia occur which present great diagnostic difficulties during their entire course, and for the first two or three days we are in doubt as to what condition is confronting us. This is especially marked when in the absence of characteristic sputa we are dealing with a so-called central pneumonia. In such a case an absolute diagnosis is impossible; yet with the concomitant signs of irritative cough, chill, temperature and disturbed respirative ratio, we may often feel safe in our diagnosis.

It is my intention to recall to the attention of the profession one other of these concomitant signs which may be of some corroborative evidence in such cases. No one who ever saw a lung in the condition of red hepatization can doubt that it weighs heavier than the normal lung.

Aufrecht, quoting Eichhorst, mentions a case in which a left pneumonia lung weighed four pounds more than the right lung, which was normal. Taking the statistics of Bollinger, Eichhorst

and Kussmaul, there is an average increase in weight of two pounds and three ounces in the affected lung. In the stage of engorgement of course the increase in weight is somewhat less.

It seems scarcely credible that a patient could carry an added weight of over two pounds on one side of the chest without being conscious of a feeling of heaviness or weight on the affected side. On careful questioning I find that as soon as the sensation of acute pain due to the accompanying pleural affection has passed off most patients suffering from croupous pneumonia in any form state that they feel a sense of weight or load on the affected side. Frequently it is only on sitting upright or lying partly on the sound side that the feeling of weight will be a prominent symptom. An intelligent patient is, of course, more apt to give us a satisfactory answer; yet in young children I have often been able to elicit the symptom.

The following instances are typical of some of the cases wherein the symptom was of value from a diagnostic standpoint.

Case I.—Mrs. E., aged 32, mother of four children, seen by me on October 1, 1906. She has been complaining of malaise and shivering, with slight irritative cough, for two days; pulse, 96; respiration, 26; temperature, 102; examination failed to reveal any physical sign of disease. There was a flushing of right cheek and occasionally some catching respirations. However, on raising the patient to the sitting position she complained of a feeling of marked heaviness on the right side. There were no physical signs apparent until 48 hours later, when all the signs characteristic of lobar pneumonia of the right, middle and lower lobes were noticeable. It ran a course of seven days and terminated by crisis and recovery. The feeling of heaviness was of distinct value in arriving at a diagnosis two days before the physical signs.

Case II.—John B., aged 7, seen by me March 1, 1908. The previous night he had a chill and some slight irritative cough. He complains of severe headache; pulse, 100; respiration, 32; temperature, 103. When raised up and turned quickly on sound side he says it feels as though a big log was thrown from his left side on his right side. There was, however, no sharp pain on the side. Physical examination revealed nothing. Thirty hours later physical signs could be made out over the left, upper, and lower lobes. With the exception of a moderate amount of delirium, the case showed no

unusual symptoms. It ran a course of nine days and terminated in crisis and recovery.

In thirty cases I have succeeded in eliciting this symptom, in twenty-one instances before the fourth day of the disease. Perhaps more care on my part and intelligence on the part of the patient would have furnished a larger proportion. In five cases it was of decided value in arriving at a diagnosis.

Doubtless many thousand clinicians have observed the phenomenon of an increased weight of the diseased lung in lobar pneumonia as a subjective symptom on the part of the patient, but so far as I can ascertain no one has recorded it as a symptom of distinct diagnostic value. It is not featured as such in any text book or work on physical diagnosis from Grissolle to Aufrecht and Müller. That it exists in most cases no one will question.

It is, no doubt, a valuable sign in the early diagnosis of lobar pneumonia, and it will often prove of distinct help in pointing to the seat of an acute affection when the symptoms are still vague and indistinct.

A NOTE ON THE DIAGNOSIS OF ABSCESS OF THE LIVER

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In the classical form of large abscess of the liver, the diagnosis can be made without any very great difficulty. The presence of intermittent or remittent fever in a subject who formerly has had dysentery, the increase in size of the liver, the appearance of hepatic or scapular pains on the right, the rapid change in the general health are all factors which should be a warning when they are found present in the same patient. An exploratory puncture should be resorted to, the pus withdrawn and the diagnosis confirmed, all of which should be followed by a surgical interference.

So far so good, but things do not always take place in this way. An abscess of the liver may frequently take on a torpid sub-acute evolution and for a long time fever will be absent, while the general

health progressively changes, the patient losing flesh and sometimes complaining of vague pain in the right shoulder. It is only later that a rise in temperature is found and the liver increases in size. In spite of all this, exploratory puncture will remain negative, and only too often foci of suppuration are only found at autopsy.

Clinically the most important point is to discover the disease, a thing which is not always an easy matter, and even when symptoms pointing to the liver dominate the clinical picture one may still hesitate. If an ordinary clinical examination does not reveal the true nature of affairs examination of the blood should be resorted to. Tuffier and Maute have shown that the presence of a leucocytosis of 20,000 or more with a preponderance of polynuclears, indicates that there is an undrained focus of suppuration.

Exploratory puncture repeated several times may remain negative. It would seem from recent investigation that radiography is of some service. On the right side the diaphragmatic dome will appear raised up by an obscure mass presenting a larger volume than that of a normal liver, while the diaphragm does not contract or only slightly so in its right half.

De Brun insists on the frequency of apyrexia during the evolution of hepatic abscess and it may be so persistent that all suspicion of suppuration is done away with. It generally follows a first attack of a severe rise in temperature, which, however, is usually of short duration and then the temperature falls, the general condition of the patient greatly improves within a few days and he believes himself well. This period of euphoria is very dangerous for more than one reason; in the first place it may lead one astray on the diagnosis and secondly it may appear to authorize certain imprudences on the part of the patient. The fever, however, soon returns, while death may take place before the site of the suppuration is suspected. Consequently one should not be led into error from the mere fact that there is a period of remission and a liver abscess should be discovered, even when in the so-called latent state.

The utility of a blood examination, radiography and exploratory puncture have been alluded to, but these means of investigation suppose that attention has been drawn already to the liver. During the period of euphoria, de Brun insists on the infrequency of the slightest pain and the patients present the appearance of conva-

cence. There are two symptoms, however, which should lead one to suspect the presence of a collection of pus in the liver, namely the condition of the tongue and symptoms found at the pulmonary bases.

The tongue which was coated becomes clean. The tip and the borders become red, occasionally even the middle of the organ, and long before the epithelial desquamation is complete, the tongue becomes dry and presents three red parallel lines which unite at its tip. Desquamation extends over the entire surface of the organ, which then takes on a raspberry color; it is perfectly dry and to the examining finger gives the sensation of a wooden body. This aspect of the tongue may, it is quite true, be met with in diseases other than abscess of the liver, but, under these circumstances, it is accompanied by all the symptoms of a severe pyrexia. What belongs to hepatic abscess alone is that certain patients may present this wooden tongue, although presenting a complete apyrexia and they may even attend to their business. And still more if these patients are submitted to auscultation they show pleural friction at the base of the right lung, occasionally extending to the base of the scapulum. These frictions are accompanied with subcrepitant râles of varying intensity, localized, or at least predominating at the base of the right lung. De Brun has found that these two symptoms have allowed him to discover abscess of the liver which was truly latent and the ulterior evolution showed the correctness of the diagnosis.

THE INTRA-PANCREATIC SEGMENT OF THE BILE DUCT IS A SIGNIFICANT AND PRACTICAL LAND- MARK IN THE BILIARY DUCTS

By BYRON ROBINSON

Chicago

A significant landmark in the ductus choledochus communis is that segment which passes through the caput pancreaticus, the pancreatic head. From my examinations in autopsies I should judge that the bile duct coursed obliquely through the head of the pancreas in 90 per cent. or more of subjects. The choledochus is imbedded in

the pancreatic substance for perhaps three-fourths of an inch in length and so firmly surrounded by pancreatic substance that it may be difficult to liberate the duct by blunt dissection and pancreatic incisions may be accompanied by alarming hemorrhage. I shall term this the *intrapancreatic segment* of the common bile duct. It is not only a significant anatomic landmark from relations with the pancreas, but also an important pathologic landmark of the common bile duct. The pathologic signification of the passage of the choledochus through the pancreatic head is that the pancreas may and actually becomes infected through the duct. It is common in autopsies, with hepatic duct infection, to be able to palpate an induration of the segment of the pancreas through which the common bile duct courses. The choledochus communis becomes attacked by catarrh, its epithelium becomes desquamated, infection, which gradually penetrates its wall, passes into the abundant glandular ductus bilis and eventually infects the connective tissue and parenchyma of the pancreas, ending in pancreatic infection, induration, hypertrophy, or atrophy, which may compromise not only the lumen and parietes of the choledochus communis but also the lumen and parietes of the ductus pancreaticus; a pericholedochus lymphangitis arises. Compromising of the hepatic or pancreatic ducts signifies retention and reabsorption of bile and ductus pancreaticus.

This anatomic arrangement of the intrapancreatic segment of the bile duct explains the clinical relation of the hepatic ducts to the pancreas. The intrapancreatic segment of the ductus choledochus communis may infect the caput pancreaticus. This is the key which unlocks the information that the head of the pancreas is so frequently diseased, viz., indurated, hypertrophied, neoplasm. The landa pancreatica, so frequently indurated, is perhaps infected chiefly from the colon, or from the stomach or ureteral pelvis.

HOW IS EXOPHTHALMUS, TACHYCARDIA AND
TREMOR FOLLOWING EXTIRPATION OF TUBER-
CULOUS GLANDS OF THE NECK TO BE
EXPLAINED?

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In the June meeting (1908) of the New York German Medical Society I presented a Russian girl of 22 years, from whose history we learned that since seven years she suffered from tuberculous glands



of both sides of the neck. Four years ago extirpation was performed. Its relapse on the right side required a second and more extensive operation a year ago. Soon afterward the patient noticed a protrusion of both eye balls, tremor and palpitation of the heart, the severity of which increased gradually.

At the same time there was a recurrence of the supraclavicular and pre-sternocleidomastoid glands.

Status March 15, 1908: Slim anemic girl, ill nourished and neurasthenic. The most exas-

perating symptoms complained of were the palpitations, which are well explained by a pulse of 152 per minute. A moderate degree of exophthalmus exists, while the thyroid gland is but little enlarged.

Graefe's and Moebius's signs are well marked. At the left side of the neck a few small glands can be palpated. The right side shows a chain of hardened glands, which extends from the upper third of the anterior surface of the sternocleidomastoid muscle down to the supraclavicular fossa. They vary in size from a pea to that of a filbert. One inch above the right mamilla a subcutaneous fibroma of the size of a large cherry is noticeable on inspection as well as on palpation. Both axillæ are free. Perspiration is increased, resistance against the electric current is decreased. The examination of the blood shows red blood corpuscles normal, number of leucocytes considerably decreased and that of the lymphocytes increased. The Röntgen plate shows the presence of 17 glands on the right side, which point to the deposition of calcareous matter in the glandular tissue.

As emphasized by me before (see my text book Röntgen Ray Diagnosis and Therapy, 1904, page 84) nothing proves the defect of our technic in extirpation of cervical glands more clearly than the presence of glands made conspicuous by their calcareous deposits on a skiagraph taken immediately after the "thorough extirpation." Röntgen therapy was administered every second day by my diaphragm method in moderate dosage, until three weeks thereafter a slight integumental decolorization was observed. After an interval of ten days, during which the reaction disappeared again, irradiation was taken up in the same manner until May 2d, when a slight reaction took place. Then the Röntgen treatment was stopped. At this period the glands had become diminished in size, also the thyroid, and the palpitations were less frequent and exasperating, the pulse oscillating between 110 and 120 per minute. For the last four weeks three tablespoonfuls of the Roncigno iron-arsenic water pro die were given besides. The improvement continued until now, when we began again to administer the Röntgen treatment twice a week.

During July and August the Röntgen treatment was stopped, the patient seeking recreation in the mountains.

On September 12th the thyroid gland appeared to be normal, and no cervical swelling could be detected except one small supraclavicular gland. The general condition proved to be fair, and there was a gain of four pounds in weight. The exophthalmus could

hardly be noticed. At this time the illustration was taken. The pulse was still accelerated and amounted to 100 on the average.

Now, what is the etiological factor in this case? The symptoms presenting themselves shortly after the last extirpation of glands resembled those of Basedow's disease. As there was no enlargement of the thyroid gland to speak of before the last operation, it is difficult to understand why just in this organ the source of the toxin, which we hold responsible for the Basedow symptoms, should be sought. And still, numerous observations seem to prove that in the chemical disturbance in the thyroid gland, and in the thyroid gland only, is found the etiological basis of this mysterious disease. One of the strongest arguments in favor of this assumption is the undeniable fact that after the removal of the enlarged thyroid gland the Basedow symptoms disappear. Kocher alone, to whom we are greatly indebted for most of our knowledge in this direction, has cured more than two hundred cases of Basedow's disease by excision of the gland. Histological changes like epithelial granulations and liquefaction of the colloid also corroborate this theory.

Now, while there is no absolute proof of the thyroid origin of Basedow's disease, these results could, on the other hand, not be well explained on the basis of the theory that the origin of the affection, the histological changes of the parenchyma and the characteristic symptoms would be in the nervous system. The observation of our case, however, seems to be in favor of the latter theory. Whether the pressure of the hard glands on the cervical sympathetic, or an injury of this nerve-system, caused by the last extensive operation, was a source of irritation, I do not feel competent to decide. I have presented the case in an inquiring sense, as a kind of living question-mark. There are surely cases of Basedow's disease without the main symptoms of that affection, a kind of Hamlet without Hamlet. In my latest publication on the subject (Partial thyroidectomy combined with Röntgen treatment in Basedow's disease, Post-Graduate Twenty-fifth Anniversary volume, 1908) I have described and illustrated such cases. In some of them considerable enlargement of the thyroid gland was combined with only a slight degree of exophthalmus, while the other characteristic symptoms were well marked. At the same time I presented two young women in whom the opposite tradition was observed. In some cases the thyroid gland may be very

small, the exophthalmus insignificant, and the tachycardia alone most marked, the heart becoming so much overworked that myocarditis may finally develop. There must be some element which determines these different relations of the size of the gland to the various degrees of exophthalmus. There must be a disthyroidosis besides that of over- and under-thyroidosis, all of which may cause an undefined and probably most indirect influence upon other organs.

These observations have shown and convinced me that the dictum of Kocher, according to which the so-called Basedow symptoms are generally in proportion to the enlargement of the thyroid gland, cannot be upheld with all due respect to the great merits of the ingenious surgeon. Perhaps the cases I have described should be regarded as tissue changes of their own special kind, as metamorphoses which resemble the Basedow character without being identical.

There are many riddles to be solved yet in this direction. Let us hope that our distinguished citizens, Halstead and McCallum, whose admirable experiments on the lower animals have given us so much information on this most interesting subject, will also throw more light on the question which has been raised by the case illustrated in this article.

ON THE DIAGNOSIS OF SOME FUNCTIONAL DISEASES

By ROBERT T. EDES

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It is difficult to draw a line between two classes of affections neither of which can be so defined as to defy criticism, both of which are subject to constant changes in classification and supposed pathology, which touch at so many places, and yet which for practical purposes it is exceedingly important to keep apart. These two classes are sometimes called "organic" and "functional." But for years since the decay of the purely academic pathologies the organic is being constantly enlarged by fruitful incursions with the micro-

scope and test tube into regions before called "functional" or "inorganic."

"Real" and "imaginary" find frequent popular use in a similar sense. "Somatogenic" and "psychogenic" would be excellent words if the latter had not already been appropriated for a much narrower group in a different sense. The "neuromimesis" of Sir James Paget is admirable as applied to some surgical affections. Perhaps "diseases" and "disorders," words which neither exclude nor necessarily include the idea of structural change and either of which may be properly applied to toxic and chemical ones are as unobjectionable as any. "Disorders" may include malingering which is compatible with perfect intellectual health but which is so often only an additional symptom of neurasthenia, insanity, and hysteria. It is important to remark that none of these designations should be regarded as commensurate with "incurable" or "curable."

In this diagnosis it is not sufficient to make out that the patient is neurasthenic, nervous, excitable, unduly apprehensive, and has symptoms that have no obvious connection with organic disease. There is nothing here to disprove its presence.

A complete diagnosis must depend upon a complete knowledge of all possible sources of the symptoms. Although such perfection of knowledge is unattainable in any one person, the practitioner should have in mind that the pain, spasm, paralysis, anesthesia, paresthesia, tremor, variations in reflex, may either have an actual direct organic foundation, or may be connected in a more roundabout way with distant lesions; and also that the mental changes, phobias, obsessions, aboulia, may be incipient conditions of well recognized forms of insanity. If he calls in the specialist to carry out the search in obscurer details it may be necessary for him to correct the parallax of more than one extreme and one-sided view. It is obvious that there are many discounts, safer in some directions than in others, to be made from this ideal thoroughness, but the practitioner should know in which direction to look, not trusting too implicitly to his instincts. Mistakes are inevitable in the application of any inexact science and there are few more mortifying and distressing than sending away a patient with the diagnosis of "only nervousness" and finding later an actual organic basis.

The neurologist who sees many cases of purely functional dis-

turbance, often wrongly included in the morbid scrap-heap neurasthenia, should be peculiarly on his guard against this mistake, carefully checking the opinions of other men, even those in whom he has the utmost confidence, leaving as few loopholes as possible, and always holding his own diagnosis subject to revision. Even long experience with the same patient does not give absolute security.

Prominent among the symptoms which should be distributed among these classes, are those connected with the intracranial and spinal nerve centres. There are many in each class which closely resemble each other, probably for the reason that the immediate underlying condition is the same, pressure within or without the vessels, on membranes, on nerves or on the whole cerebral contents, intra- or extra-vascular, referrible however to two different sets of remote causes—which are what we wish to separate. Such are headache, vertigo, feeling of tightness, fulness, floating, and other cerebral paresthesias, described with as much distress and far more variety by the neurasthenic as by the sufferer from a cerebral tumor, or from Bright's disease.

A small nonmalignant tumor, a cyst of the choroid plexus stopping the passage of fluid from the ventricles to the subarachnoid space, may give rise to a pressure in every direction which will cause a general headache and coma rapidly preceding death. The syphilitic headache is apt to be worse at night and the neurasthenic to be aggravated by nervous fatigue.

The thermometer will mark off the acute inflammatory headaches but the dull enduring headache of pachymeningitis is not so easily and surely ruled out. It is not likely to occur in the same class of cases and is associated with mental dulness and not mere fatigability.

Poisonings by metallic or vegetable substances taken as foods, drinks, or medicine are fairly to be reckoned among organic causes. Such are alcohol, either in the form of the too frequent reprehensible cocktail or the "nerve tonic," tobacco, opium, nitroglycerine, chloral, and very large doses of bromides; also arsenic and the stronger preparations of iron. It is obvious in several of these cases that the disease might get the discredit which belongs to the treatment. The diagnosis can usually be readily made by a temporary abstention and, in the case of the minerals, a chemical examination. In none of

these conditions is there likely to be total absence for a great while of other signs.

There is no condition in the whole range between absolute freedom from all tangible symptoms and sudden death, which is inconsistent with the presence of sclerosis of the cerebral vessels. All that headache, vertigo and other functional disturbances of a similar kind added to arcus senilis, can justify in this direction is a suspicion.

With the addition of others, slight temporary paralyses, emphasized by errors in diet, constipation, fatigue or unusual excitement, and an increase in vascular tension instrumentally measured, or detected by the fingers on outlying arteries or the stethoscope at the heart, the diagnosis more or less nearly approaches certainty.

The intracranial vessels may be either much more or much less advanced in degeneration than those elsewhere. A small patch of roughening in the middle or anterior cerebral may be the starting point of an extensive thrombus, softening and death; and on the other hand the whole aorta and its large branches may be scarred, twisted and narrowed with comparatively slight cerebral symptoms.

The annoying and alarming vertigo not dependent, so far as can be proved, upon aural derangement, not connected with known digestive trouble (*vertigo a stomacho laeso, often a very forced diagnosis*), associated with no paralysis, headache, or epilepsy, is a symptom of little prognostic or diagnostic value. At the worst it may suggest to the physician a possible degeneration of cerebral or aural vessels, a view so insecurely founded and yet so far-reaching and distressing, that it should never be communicated to the patient. In the absence of other signs and of arterial disease elsewhere, it is better to consider it dependent upon temporary cardiac or vasomotor disturbances, a diagnosis which, although not a certainty, will prove correct much more frequently than a very serious one.

Headache, vertigo, and a certain amount of loss of memory or bizarre and unbecoming behavior, even with a history of syphilis, are not conclusive of general paresis, the "softening of the brain" of the laity. It is only by the search for the somatic symptoms, after a sufficient time of observation, and especially after the clearing away of accidental complications (alcohol, bromides in large doses, hypnotics), that this question, so highly important to be made early, can be answered.

It would at first seem as if the diagnosis between a nervous headache and one due to interstitial nephritis or to intracranial growths should be a very simple one. There is nothing in the character or location of the headache to distinguish them. A nervous headache is extremely likely, as with other nervous phenomena, such as a hysterical paroxysm, to terminate in a copious flow of pale urine and if that urine should contain, as does not infrequently that of fairly healthy persons, a few pale casts and a faint trace of albumin there are the materials for an erroneous diagnosis. This applies mostly to the early stage and the single measurement of the urine. A diabetes insipidus is always hysterical. Even if the pathological constituents are absent from the urine and there are no other cerebral symptoms it is not an absolute certainty that the headache is purely nervous but with properly repeated tests it would be an extremely exceptional case in which the diagnosis of either Bright's disease or a tumor could be long delayed. It is of course possible that the kidneys may, without decided change of structure fail to carry off some poison not as yet distinctly recognized, the accumulation of which gives rise to headache and other painful affections. The most definite accusations have been made against uric acid and other products of nitrogenous catabolism but there is as yet nothing conclusive. An acidosis of some kind seems to be most prominently in the field of biochemic inquiry at present. A good many observations of my own seemed to me to show that the usual neurasthenic headache is not of uric acid origin. Fortunately practice need not wait for the matter to be settled. There are plenty of diet schemes which will ward off the risk of excessive proteid nutrition without undermining the strength or developing a morbid fastidiousness of appetite.

The sick headache lasting two or three days, recurring with considerable regularity, and often terminating by vomiting is best regarded, until a more definite chemical origin can be assigned, as accumulative or crisis action of fatigue. The further diagnosis is concerned in getting at the source of the fatigue.

Many physicians go beyond the headache and assign, not to fatigue in general, but to their own particular source of fatigue, the whole series of nervous disorders, their varieties and their concomitants. The diagnosis of the whole class is more or less involved with that

of the headache. Mental exertion, anxious, inadequate to the task, ever driven by responsibility, disgusted by monotony, overweighted by morbid scruples, handicapped by doubt and fear, psychic and somatic imperfections, is undoubtedly the most prolific source of nervous fatigue and its consequences. Mental exertion *without these qualifications* leads to fatigue which is promptly restored like any other kind, and gives rise to no question of diagnosis. When the exertion *with the qualifications* has gone so far that restoration does not take place completely in a reasonable time the condition is distinctly morbid. But since the capacity for mental exertion and its adequacy to do what it is called upon for, vary so widely no one can say what is and what is not a sufficient cause for neurasthenia.

At the head of the list of somatic disorders which convert normal mental exercise into a source of nervous breakdown is undoubtedly eye strain. No case of headache, possibly of the whole neurasthenia group when no other adequate cause is clearly present, has undergone a thorough examination unless a careful inquiry into the refraction and musculature of the eye has formed a part of it.

Unfortunately for the practitioner, the neurologist, and the patient, several views, widely differing but claiming the same field, are presented to them. It is not to be expected that the neurologist should be an expert in every direction, but he should have sufficient knowledge of the theories to make use of their data intelligently.

Gould recommends a preliminary pharmacologic test for the use of the general practitioner, namely the instillation of atropine for several days, during which the headache if of refraction origin remains absent.

Fatigue arises from imperfect and difficult hearing, from an analogous condition of strain in the little muscles of the drum and the attempt to combine indistinct sounds into a coherent and intelligible meaning. Sexual excess of any kind is a potent factor of exhaustion in either sex, and diseases of the pelvic organs are among the most frequently assigned causes for nervous debility in women. It is probable that a much larger part of the neuralgias nervous, and hysterical manifestations are connected with the psychical, emotional, and nervous side of the sexual life, than with tangible diseases of the genital organs. This applies even more strictly to those mental conditions, the obsessions, depressions, and melancholias standing close

to the line of insanity. How close this relation may be in young men is well known to the physician, and only too well to the quack. After a suitable physical examination a further psychic diagnosis may be obtained by simple frankness on the part of the patient, or in obscurer cases by the elaborate analytic method of Freud.

The pains located in the spine below the occiput are usually to be recognized as neurasthenic by their associations and by their being aggravated as much by nervous as by muscular fatigue, but other possibilities are not to be neglected. Meningitis, spinal arthritis, chronic muscular rheumatism, spondylitis deformans, tumors pressing on the cord, caries and malignant disease of the vertebræ, are likely to be betrayed by pain on pressure, on jarring, indicated by certain movements, gait, and deformity, or by the application of heat, as well as the radiation of the pain along the course of nerves originating in the cord or passing through the membranes and ligaments in the neighborhood.

Cervical and dorso-lumbar pains, so common and of so little diagnostic value in anemic and debilitated women, should not be dismissed until the dragging of a subinvolted uterus, of movable kidneys, a general enteroptosis or the weakening of the great muscular supporters of the spine by too little exercise or overstrain, can be either totally eliminated or made to share the blame. But enteroptosis and neurasthenia are not synonymous.

Few pains are so pathognomonic as to be negligible in diagnosis. The ease with which the patient can be diverted from the feeling, its cessation when the attention is called to another region or after the administration of a medicine are important elements. The pulse rate and arterial tension may rise under the effect of a sudden acute pain or pressure upon a point of tenderness; but emotion, perhaps the dread of an examination, may do the same thing. Severe pain makes its mark upon the physiognomy.

Neuralgias are to be separated from neuritis by the etiology (debility and anemia on the one hand, alcohol, diabetes, tuberculosis or poisoning on the other), the pain dependent upon pressure over points of exit rather than in the muscular masses, the association with motor phenomena, and, in advanced cases, muscular wasting and reaction of degeneration.

Pain and tenderness on pressure over the ovaries, or over the

appendix demand the most care of all, but require other symptoms before they can certainly be referred to organic disease in the underlying organs.

Paresthesiæ, prickling, formication, tingling, itching, and especially numbness of the hands and feet, which is almost always a paresthesia and not an anesthesia, may be connected with neuritis or with degeneration of the cord such as occurs with anemia.

Visible changes in the circulation of the limbs, erythromelalgia or Raynaud's disease, at times pure neuroses, after a short observation may be left out of sight in the diagnosis of malingering. Arterial disease is always to be carefully sought for. Among the paralyses and anesthetics the diagnosis is always to be drawn by a careful comparison of symptoms, alleged and observed, with well recognized cerebral, spinal, and neuritic diseases; and the distinction should be made to depend upon complete pictures of the symptom-complex and not merely upon this or that phenomenon contrasted separately with an uncertain standard. Some of these can be more or less skilfully imitated, and it is not possible to foresee to what developments the lucrative industry of getting damages may not lead.

Muscular wasting, fibrillary twitching, the effect of distracting the attention, the separation of different forms of anesthesia, the occurrence of bedsores and above all the behavior of the reflexes, especially the deep, should make the distinction of the organic affections in the vast majority of instances.

In the medico legal cases an entirely different set of considerations come into play, which it is difficult to generalize and impossible to lay down fixed rules for, veracity, intelligence of the patient, skill of the counsel, education, social position, "expectant pecuniosity," the effect of litigation. The line between a purely functional disorder and conscious fraud is not always easy to draw, nor when drawn easy to make clear to a lay jury. It is perhaps too early to say whether laboratory methods may make the distinction clear, and whether they have in near prospect a field of usefulness in neurology as well as in the diagnosis of insanity.

Certain forms of anesthesia are distinguished as hysterical or functional.

1st. Absolute, complete up to the median line, usually involving the face.

2d. The so-called "sleeve anesthesia" corresponding to the segment of a limb and not to the distribution of a nerve.

3d. Patchy anesthetics. It is chiefly this last which might give rise to an erroneous diagnosis of *tabes* or vice versa.

The first two obviously correspond to the ideas of an emotional and uninstructed person rather than to a physiological probability, and are nearly conclusive of functional disorder. If these can be suddenly removed or materially changed by metallo,- magneto,- psycho,- hypno,- or pharmaco-therapy the diagnosis is conclusive.

With the functional anesthetics are to be reckoned those of the special senses, among which the most important and characteristic is vision, showing with great clearness the idea of half-blindness present in the mind of the patient. Unilateral hemiambyopia with limitation of the field and change in color sensitiveness is as distinctive of functional blindness as hemianopia is of a central lesion.

A middle-aged male cook, with no claim for damages, had something like a shock. He gave exactly the picture of the limitation of the fields of color vision according to the then very recently published description of Charcot.

The provisional diagnosis at the time was of a limited lesion in the internal capsule. At present it would undoubtedly have been called hysteria.

A feigned amblyopia or blindness may be detected by crossed mirrors.

Functional motor paralyses take a great variety of forms being determined like the anesthetics largely by the ideas and associations of the patient. *Astasia-abasia*, inability to stand and walk, with ability to make all other movements, is a typical example.

The hemiplegia very rarely involves the face. Such paralyses are attended by few of the other phenomena met with when of organic origin. There is likely to be some increase of reflexes but not ankle clonus nor Babinski. Contracture, extreme and obstinate, may be met with but it is an acquired one dependent upon long continued position and not upon central changes. Etherization may be of use in this diagnosis. The reflexes, especially the deep, are of the very highest importance for they are not easily suppressed nor easily feigned. The knee jerk has been said to be absent in normal persons but one would make very few mistakes if he assumed that

it is *never* absent when sought for carefully with reinforcement, when there is no diabetes and when the organic integrity of the cerebrum (general paresis) and of the cord is above suspicion. It can by an effort be prevented from raising the foot but the effort and the contraction of the rectus can be detected. It is exaggerated in many kinds of nervous irritability but individual variations are so great that this condition is only of corroborative value. Ankle clonus is said to occur in hysteria and a plausible temporary imitation can be obtained, but a regular typical ankle clonus in a person unfamiliar with it is as nearly pathognomonic of postero-lateral sclerosis as any one symptom can be. The arm, wrist and elbow jerks are not so regularly elicited and vary within wider limits. If greatly exaggerated they mean the same for the upper part of the cord that ankle clonus does for the lower.

Ordinary plantar reflex can be resisted for a short time or it may be greatly exaggerated, depending to a great extent rather on the sensitiveness of the skin than on the excitability of the cord. The Babinski, extension of the great toe, can be momentarily imitated, but when genuine, is a symptom of more importance than the presence of the normal flexion, testifying as to the existence of organic disease in the cord.

The other skin reflexes, obtained at different levels, are of more importance in localizing a lesion than in merely determining its presence.

Some sclerosis of the cord may in the early stages present symptoms resembling neurasthenia. The disseminated form is often associated with hysteria, but offers sufficiently distinctive features of its own, intention tremor, affections of the optic nerve and external muscles of the eye, especially nystagmus; and the "morbid complacency in the face of a serious and alarming condition."

The acute ascending paralyses, Landry, and poliomyelitis if no fever has been observed, may for a time be mistaken for hysterical paraplegia. One such mistake arose from not taking as decisive the failure of the knee jerk, which was thought to be due only to the awkwardness of the position while the attempt to obtain it was not persisted in long enough to make the matter certain.

The delicate mechanism of heat regulation is so purely automatic that control by the volition or by any idea is hardly supposable

in any regular way; or at least, if any such interference be possible, it would be in the extravagant and bizarre manner of many other invasions of purely functional phenomena in the orderly progress of organic processes. Recent inquiries as to occurrence of real hysteric fever seem to have resulted in finding none.

On the other hand the very exceptional hyperpyrexias have been to a great extent discredited as fraudulent. All that can be said is that there are some, which present none of the other phenomena of pyrexia, where no deception has been detected. It may safely be claimed that a temperature within the limits of pyrexia and following with some regularity at a fixed rhythm is not due to any functional nervous disorder. Its occurrence calls for a more careful search for an infection.

So-called concussion of the spine is far from being a clinical entity. Four conditions are to be distinguished:

1. Injury to the cord without fracture of bone, possibly hemorrhages or small ruptures.
2. Traumatic neurosis; where a bruise or sprain has been magnified by the imagination and retained in the memory after real injuries have disappeared.
3. Malingering; usually for financial reasons, although the fantastic hysterical feigner is not unknown.
4. Spondylitis.

Cases of the first form like the following are not common.

A man fell on his back across a wheel. There were soon pain and twitching in the legs. Then complete paraplegia, and later, increase of tendon reflexes in the upper limbs and extreme contracture. No macroscopic lesions of importance were found, *no fracture of vertebrae*; but in the cord extreme degeneration of the posterolateral columns and of the columns of Türck.

Several other cases gave conclusive evidence of degeneration in the same regions, in the form of abnormal reflexes.

The diagnosis depends upon the general considerations already laid down.

A more difficult problem is presented in some cases of shock and injury to the cranium, or the after effects of sunstroke. Here there are fewer objective symptoms available, for in regard to the inability to concentrate the attention, to remember business details, to do mental work without rapid exhaustion, to take the initiative, to the dread of responsibility, we have neither a fixed standard nor the

means of exactly measuring the mental capacity. Subjective statements must be taken into the account. It is difficult to estimate courage and will until brought into actual contact with the real obstacle or the opportunity.

An ambitious young man with flattering prospects is unlikely to become a malingerer or a "malade imaginaire" against his will, but these possibilities are always to be considered in persons of weaker psychical development, or temporarily impaired physical well-being.

In some cases where there has been a demonstrable lesion of the cranial bones or where such a lesion may reasonably be assumed, without an operation, there is a possibility of local lesions of the nature of meningeal adhesions or small growths, such as have been found in other cases where a second operation has been undertaken with relief on account of the persistence or the recurrence of symptoms. It is not beyond bounds of probability that cases of intracranial tumor may find their origin in lesions of this kind.

Whether laboratory methods can clearly decide between inability and disinclination, between fatigue and indifference, between a morbid fear of responsibility and a becoming modesty, any better or so well as the observation of friends and physician, is not, as yet, certain.

The nervous disorders of the abdominal and thoracic viscera are not so difficult to separate off, inasmuch as we have the physical signs with morphological and chemical changes in the blood and secretions to make the differential diagnosis. Pains may of course be exaggerated by over attention, but after all, if chronic and continued, usually mean a lesion. Visceral sensations do not normally rise in a definite form above the threshold of consciousness, while on this as well as on the motor side the connection of the "vital organs" with the central nervous system is either through autointoxications or a roundabout one through the vasomotor system.

Nervous palpitation of the heart, the "heart disease" of the hypochondriac, is well known, and diagnosticable. The rise of arterial pressure which may take place from pain or from emotion has already been discussed. A simple tachycardia should be looked at with an eye to the future development of the other symptoms of exophthalmic goitre. Such cases will present conditions of nervous excitability and restlessness closely allied to neurasthenia, so that

in fact the line between them is not only difficult to draw but it may be doubted whether such a line exists.

The sphygmogram most frequently found in neurasthenia is one of somewhat resistant arteries with a moderate impulse, that of a tension high in proportion to the vigor of the impulse, but not in proportion to the normal, resembling in form that of arteriosclerosis and hypertrophy but of less height. Strauss finds that in many neuroses, especially the traumatic, the blood pressure is raised.

The movements of respiration, from their closer connection with the voluntary muscles, are more easily affected functionally for a time.

A very curious case was exhibited some years ago to many physicians, medical classes and physiologists. The patient had received a severe blow upon the head without fracture and after a brief unconsciousness found himself breathing at a rate of a good deal over a hundred per minute, like the panting of a dog. This rapidity, never less than several times the normal, continued day and night and during sleep. The officers of the defendant company were convinced by their own expert that it was practically impossible for a man to keep up such a rate voluntarily even for a short time without utter exhaustion, and they paid him large damages. He recovered a year later after two applications of the shin bone of St. Anne.

Nervous asthma and nervous cough should be kept in mind but not too hastily assumed.

Gastric symptoms often show how closely the most serious organic disease may be counterfeited by a disorder resting on a purely functional basis.

It is not safe to regard neurotic vomiting in the optimistic light found in much text book literature, for a thorough emptying of the stomach after each feeding can have but one result, whether due to a tumor or an idea. The diagnosis is sometimes of the most evident, but a conclusive one must depend on ruling out all other causes by careful feeding and examination of the gastric contents, before a resort to surgical intervention.

The symptomatology of chronic invalidism is extensive and varied; it may be the present accompaniment or the residuum of organic disease with which are combined in all proportions and varieties exaggerations, misinterpretations, additions from imagination, constant introspection, fixed idea, want of courage, indolence, and

craving for sympathy or notoriety, but all these possibilities should not obscure that of the organic element underlying.

It is for the credit of the physician, the advancement of knowledge, the welfare of the patient, and of the community, now so much addicted to psychic therapeutics, that the diagnosis should be made early from a comprehensive knowledge of all the facts and not from successive changes of theories and the result of haphazard trials of all sorts of methods.

PERIPHERAL FACIAL PARALYSIS OF SYPHILITIC ORIGIN. THE DIAGNOSTIC AND PROGNOSTIC IMPORTANCE OF ITS RECOGNITION¹

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Syphilis has a special predilection for the central nervous system. The peripheral nerves independently of their centres are not commonly involved in the course of syphilis. The cranial nerves become affected in the course or at the onset of those organic nervous diseases in which syphilis is considered the chief cause. Among them paralysis of the third and sixth nerves is the most frequent occurrence. Then again a simultaneous palsy of two or more cranial nerves in the course of cerebro-spinal syphilis or in other organic diseases of syphilitic nature is not at all rare.

As an isolated involvement of a single peripheral nerve, the trigeminus may be mentioned. Frequently other cranial nerves are associated with the fifth. On the other hand, an isolated involvement of the seventh nerve of Bell's type is decidedly rare. In the literature for the past few years I could find only three cases: one by Debove and two by Jeanselme (*Presse Médicale* No. 44, 1908).

¹Read at the meeting of the Pennsylvania State Medical Society, Cambridge Springs, September, 1908.

When we consider the nature of syphilitic lesions, we see that a meningeal involvement is almost always present. At the beginning we notice general disturbances and nervous manifestations, particularly headache. They are probably due to meningeal reactions, which can be demonstrated by the state of the cerebro-spinal fluid (lymphocytosis). The involvement of the meninges may be particularly marked at the level of superficial origin of certain nerves, cranial or others, and through compression it will produce motor palsies or neuralgias according to whether motor or sensory nerves are affected. If we are able to explain the mechanism of the disease, we do not know yet the reason why the nerves of the eye are most frequently touched by the pathological process. We equally do not know why the syphilitic poison has more predilection for certain nerves than for others.

It is consequently difficult to explain the rarity of involvement of the seventh nerve. However, the latter occurs occasionally and in their presence one must not ignore the fact that "cold" which is so generally accepted is not always the etiological factor.

I am able to present the histories of six cases in which an isolated palsy of the facial nerve developed while the patients were under the influence of the syphilitic poison. Some of them were stricken shortly after the initial infection, others much later, viz., two and four years. In all cases the palsy appeared in the most imperceptible manner and from the beginning until the time of recovery the type remained peripheral, viz., the entire half of the face was involved: the mouth was drawn, the forehead could not wrinkle and the eye remained open.

When the presence of a syphilitic history was ascertained by me, a most rigorous antisyphilitic treatment was instituted. No other medication or physical application was used.

The first two patients developed facial paralysis two months after the initial chancre. Both presented adenopathies in the groins and neck with occasional patches in the mouth disappearing and reappearing. None of them was under treatment when the palsy appeared. The latter developed insidiously with a few premonitory symptoms on the affected side, viz., a sensation of coldness and numbness. They were brought to me two days later. While investigating as to the etiology of their paralysis I learned of the

specific infection. Although the patients referred to a "cold" to which every one is so prone to ascribe it, I nevertheless failed to ascertain it in a definite manner. After having eliminated all other possible causes, I logically arrived at the conclusion that the syphilitic infection was at fault. What was particularly favorable to this idea was the presence of the patches in the mouth and the occasional headache of nocturnal character. In the four remaining patients the facial paralysis appeared between two and four years after the initial chancre. It is noteworthy to observe that the palsy developed during a period of headache lasting from two to three months. Besides the headache, two of them presented a certain degree of somnolence. It is evident that they all suffered from cerebral syphilis, though to a mild extent. The old syphilitic infection therefore became for some reason active and affected the facial nerve at its superficial origin or peripheral termination. There was no history of cold or traumatic cause which could explain the nerve paralysis. The latter developed slowly: the patients noticed at first a slight difficulty to keep fluids in one side of the mouth, then the naso-labial fold became less pronounced than that of the opposite side and finally the orbicularis palpebrarum and frontalis suffered. Why this succession of muscular involvement, it is not easy to explain. Perhaps the meningeal syphilitic infiltration was at first so minute that to press upon a certain portion of the nerve and later when it increased it englobed the entire origin of the nerve. Two of the patients concealed for a long time their former specific infection and only after a prolonged insistence a confession was obtained from them.

All the six patients were put on mercurial treatment at first. Inunction of a half of a drachm twice daily was the method. Improvement was noticed early. The first two patients, who, as I said before, presented secondary symptoms, began to improve on the sixth inunction and in all one received 16, the other 18 inunctions. Recovery was complete.

The other four patients received 10, 15, 15 and 8 inunctions respectively. The treatment had to be discontinued, as signs of intolerance were noticeable. Iodide of sodium was substituted. Mercury improved the condition, but not to the same extent as in the first two cases. Iodides on the contrary hastened the recovery

which was finally as complete as in the other two cases. A saturated solution of the drug was administered beginning with ten minims and every other day two minims to the dose added. The four patients took 64, 52, 72 and 30 drops three times a day for a period of two to three weeks, to when complete recovery took place. The headache in all and the somnolence in two patients have also disappeared while under treatment.

The six patients received at no time any other treatment; no massage, no electricity, no applications to the parotid region were employed. The onset, the mode of development of the condition were so evidently syphilitic in nature, that I had no hesitation in making the pathogenetic diagnosis. I must also confess that my scientific curiosity played a considerable part in avoiding other therapeutic measures. It was not a *post hoc ergo propter hoc* with me; it was not because the patients had a history of syphilitic infection that led me to believe in the specific nature of the palsy. It is the slow onset, the absence of the usual causes (cold, trauma, otitis, etc.), the presence of mucous patches in two patients, the presence of nocturnal headache and somnolence in the other patients, finally the knowledge of individual nerves being attacked not infrequently by the syphilitic poison, all these circumstances made me arrive at my diagnosis of the nature of the facial paralysis in my six cases.

The comparative infrequency of *isolated* seventh nerve palsy in syphilis warranted me to bring the observations before the profession. It may be of practical utility.

The cases are as follows:

CASE I. Man, 28 years of age noticed that he had some difficulty in masticating on the right side of the mouth, as there was a sort of a numbness, he said. The right cheek appeared to him cold and he had to rub it quite often. Two days later he observed that he could not blow properly with the right side of his lips. On the following day saliva would accumulate in the right angle of the mouth. Shortly afterwards he noticed a watering of the right eye. He then looked at himself in a mirror and noticed that the face was slightly turned to the left. Three days later all the symptoms of a true Bell's palsy were fully developed.

Two months prior he had a chancre which was treated with cauterization and internally with iodides. At this time numerous mucous patches were found in the mouth. The glands in the groins were decidedly enlarged on both

sides. There was one large gland in the sheath of the sterno-mastoid muscle on the right.

A close questioning failed to reveal any of the usual causes for the facial paralysis. There was no exposure to cold. By exclusion I arrived at the conclusion that syphilis was the direct cause of the condition. Accordingly I advised inunctions of mercury of half a drachm twice daily. On the fourth day, viz., at the end of the sixth inunction, improvement began to be noticeable. The orbicularis palpebrarum improved first. The eye would close better. The face gradually became straighter. Sixteen inunctions were required for complete recovery. The patient stood the mercury very well. The mucous patches have also disappeared under the treatment. At no time was massage or electricity used.

CASE II. Man of 32, contracted a chancre about two months prior to coming under my observation. Local application of some caustic was used and internally, he said, he took iodides. About six weeks later he noticed an uncomfortable sensation over the entire right side of the face. Then two or three days later he noticed that he was unable to keep fluids in his mouth on the right. Gradually, in a period of six days, a total facial paralysis of peripheral type was fully developed, viz., face was drawn to the left, the right eye could not close and the forehead could not wrinkle on the right.

The patient also complained of occasional headache which was at times quite severe and always appearing about nine o'clock in the evening. This circumstance together with much enlarged glands in the groins, also the history of infection, led me to believe that the facial paralysis is also of syphilitic nature. No other cause could be traced. Similarly to the first case I administered here mercurial inunctions. Improvement began on the seventh and recovery on the eighteenth inunction. Neither massage nor electricity was applied here.

CASE III. Man, 35 years old, had a chancre two years prior to coming under my observation. He gave a history of an eruption about a month after the initial infection. Fifteen months later he began to suffer from headache. The latter was continuous and at times was unusually severe. The patient became also apathetic and somnolent. Upon awakening one morning he noticed that his mouth was drawn to the left. Two days later he noticed that the left nasolabial fold became deeper than the right and on the following day the right orbicularis palpebrarum and the frontalis muscles became involved. The paralysis of the seventh nerve was total, viz., peripheral in type.

I suspected that the latter was syphilitic in origin, especially in presence of the persistent headache and somnolence, signs likely of cerebral syphilis. The latter was evidently not recognized, as he was treated with various stomachic remedies and his eyes were repeatedly tested and glasses adjusted. The patient did not reveal his infection to his physicians. Mercurial inunctions were instituted by me in doses of half a drachm twice daily. Upon the tenth inunction only some improvement was noticed. At this time intolerance to the drug made its appearance, viz., salivation and diarrhea. A discontinuance of mercury removed the untoward manifestations. Iodides were then

substituted and rapid improvement with complete recovery followed. I began the drug with 10 minims t.i.d. and increased two drops to the dose every other day. When 64 drops were reached the recovery was complete.

CASE IV. Man, 40 years of age, contracted syphilis four years ago. Chancre, eruption, mucous patches were the manifestations. About three months ago he noticed a gradually appearing right facial paralysis which within five days reached its full development.

Upon examination I found a typical picture of Bell's palsy. A close inquiry revealed the fact that he was also suffering from persistent headache, mostly occurring in the evening. He also told me that he frequently had attacks of vertigo and that his memory was deficient. The confession of a previous chancre with secondary symptoms was obtained with the greatest difficulty. The patient was put at first on mercurial inunctions. The fifteenth inunction produced a very marked salivation. At this period some improvement of the facial palsy was noticed. Sodium iodide was then substituted and administered in the same manner as in case III. Rapid improvement followed and complete recovery resulted when the dose of 52 minims was reached. No electricity or massage was used.

CASE V. Man, 39 years of age, had a chancre three and one-half years ago. During the last year he has been suffering from headache and as he did not reveal to his physician his previous history, no antisyphilitic treatment has ever been prescribed. He also grew dull mentally and was frequently laid off from his work. Shortly before he came under my observation, he noticed that his mouth was drawn to the right and three days later he was unable to retain fluids in his mouth; they would run out from the left corner of the mouth. Sixteen hours later his left eye began to water and he could not close it. His facial paralysis then was complete.

Mercurial inunctions were instituted. At the end of seven days improvement was distinctly noticed, but unfortunately the patient showed signs of intolerance to the drug. It was then substituted by sodium iodide. Ten minims of the saturated solution were given t.i.d. and increased every other day two minims until 72 were taken t.i.d. The recovery was then complete. No electricity or massage was administered.

CASE VI. Man of 26, contracted syphilis at the age of 22. After the chancre healed up, he refused to follow the antisyphilitic treatment advised by his physician. During four years he had periods of severe headache and in the last attack he developed a facial paralysis on the right side. The latter developed gradually. When he came under my observation and the history of periodical headache was given, I questioned him in reference to a specific infection. In spite of his denial I placed him on mercury in inunctions, half a drachm twice a day. Improvement began at the end of the fourth day, but this treatment had to be discontinued, as the patient salivated considerably. Iodides were then substituted and complete recovery was obtained when the patient reached 30 minims. He then confessed of having been infected. No electricity or massage has been employed.

SOME GENERAL CONSIDERATIONS CONCERNING
SYPHILIS OF THE NERVOUS SYSTEM¹

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In considering the frequency of the occurrence of syphilis, it has been estimated that the nervous system is affected in about two per cent. of all cases of syphilis, and in from twelve to twenty per cent. of those cases which develop tertiary lesions. Of all organic diseases involving the nervous system, those caused either directly or indirectly by syphilis form an exceedingly large percentage. A recent routine examination of 100 patients (excluding epileptics) in the nervous wards of the Philadelphia Hospital showed that 40 had symptoms of syphilitic or parasyphilitic diseases, and most of these gave a more or less definite history of specific infection. While this percentage is probably too large to be accepted for a general average, on account of the class of patients treated in that hospital, it is valuable in showing that syphilis of the nervous system is very common.

Syphilis in the nervous system may be manifested either in actual syphilitic lesions of the brain, spinal cord, or their membranes or the so-called parasyphilitic diseases supposed to be toxic or chemical in character. These latter include locomotor ataxia, general paresis, optic atrophy, epilepsy, etc., also, as hereditary results, infantilism, hydrocephalus, deficiencies in development of the brain and spinal cord, and less frequently, juvenile tabes and paresis.

To consider briefly the parasyphilitic diseases in their relation to syphilis, it may be stated that tabes and paresis have been shown to have been preceded by syphilis in from 90 to 95 per cent. of all cases. Epilepsy developing in patients more than thirty years of age, is frequently found to have been preceded by syphilis, which is undoubtedly an etiological factor in its occurrence. In hereditary syphilis, the physical and mental defects, such as the Hutchinson

¹Read before the Camden, N. J., Medical Society, September 1, 1908.

teeth, the saddle nose, infantilism, and varying degrees of imbecility, are evidences of toxic action on the nervous system.

The active lesions of the nervous system almost always begin in the membranes of either the brain or the spinal cord, in the form of a subacute or chronic round cell infiltration with subsequent thickening of the meninges which may become the site of gummata. A peculiarity of this process is the frequency with which the base of the brain and the posterior portion of the spinal cord are involved. The process may extend into the substance of the brain or cord in varying degrees, but primary involvement of nervous tissue by gummata is rare. The meningeal thickenings and adhesions involve the roots of the cranial and spinal nerves, and the proliferation may extend to their sheaths with consequent destruction of fibres and alteration of function. Primary syphilitic peripheral neuritis, however, is a very rare condition. Cestan, in 1900, reported three cases, and at the same time collected the reports of 11 cases from literature. Spiller¹ questions its existence, and thinks that cases of neuritis occurring in syphilitics can probably be accounted for by the mercury used in the treatment or by other intoxications.

Another important element of the pathology is the change which takes place in the blood vessels. Here the infiltration and thickening of the walls produce a narrowing of the lumen and frequent thrombosis and obliteration with softening in the area of distribution. The walls of the larger vessels become weakened from degenerative changes and hemorrhages occasionally occur. Thus, in brief, the pathology consists of a diffuse subacute or chronic process or afebrile inflammation with cellular deposits in the meninges, blood vessels, and nervous tissue. The meninges become thickened, adherent, and show a tendency to gummatous formation. The vessels tend to obliteration or rupture, and the nervous tissue to softening and atrophy. The cranial and spinal nerves are affected by the involvement of their roots in the meningeal process, but the peripheral nerves are rarely or never involved with this exception. The lesion may be localized to one point but the tendency is to multiplicity.

The symptomatology follows closely the pathological condition upon which it is dependent. The time of the first appearance of nervous symptoms varies from the secondary stage of the disease to almost any period during the life of the patient. Boidin and Weill²

reported a case in which the chronology was as follows: Chancre, the middle of June; headache, July 15th; meningitis, August 5th; secondary eruption, August 12th; recovery from the meningitis, August 17th. Lumbar puncture in this case showed an almost pure lymphocytosis. Cerebro-spinal symptoms are quite common during the first year, and probably most of the cases develop during the first five or six years after infection, becoming less frequent later, and cases of serious tertiary lesions have been reported occurring twenty or more years after the primary infection.

For convenience in the clinical consideration, syphilis of the nervous system may be divided into cerebral, spinal, and cerebro-spinal forms.

The symptoms of cerebral syphilis may be divided into general and focal symptoms. Among the most important of the general symptoms is headache, which is often early, violent and constant, preventing sleep and not yielding to the common analgesics. Such a headache may last for weeks and stop suddenly with the onset of a hemiplegia. This symptom is often controllable by mercurial treatment and, if instituted in time, it is conceivable that an impending vascular accident might be avoided. The mental condition generally shows some alteration, and changes in disposition, apathy, and especially a certain amount of dementia is very common. Attacks of vertigo, vomiting, unconsciousness, apoplecticiform and epileptiform attacks not infrequently occur.

The focal symptoms depend entirely upon irritation or destruction of tissue in those portions of the brain of which we know the localization. Thus we may have symptoms of a tumor in almost any part of the brain, or more frequently, those of a chronic basal meningitis with the involvement of one or more of the cranial nerves. Ocular palsies are particularly common, and transitory squints and ptoses are among the most valuable signs of cerebral syphilis. The pupillary changes are also very important, the inequality in size, irregularity of outline, and the sluggishness or absence of reactions being cardinal symptoms. Affections of other cranial nerves are less frequent.

All the symptoms of cerebral syphilis are very variable, appearing, disappearing and reappearing again, often in a more severe and permanent form. This variability is explained by the rapidity of

the proliferation of new tissue and its subsequent absorption, causing variations in pressure greater than that in any other disease.

The symptoms due to vascular changes are very important and among them can be classed nearly all cases of hemiplegia in patients without cardiac lesions under forty years of age. Slight apoplectic attacks recurring at intervals and leaving transient palsies, paresthesias, etc., frequently precede permanent paralysis. Fatal hemorrhages sometimes occur from the arteries of the base.

Symptoms of spinal syphilis can be accounted for in the same manner as are those of the cerebral disease,—meningeal irritation, causing pain in the back; and, because of the earlier and more severe involvement of the posterior part of the cord, symptoms referable to the posterior or sensory spinal roots. These are at first irritative in character and include girdle sensations, radiating neuralgic pains, paresthesias and hyperesthesias in the areas of their distribution. When the anterior roots are involved, weakness develops in the muscles supplied by them. As the process extends into the cord we may get any or all of the symptoms of an acute, subacute or chronic myelitis, from a slight disturbance of the bladder or rectal sphincters, to a complete paraplegia or even diplegia. In syphilitic myelitis, the reflexes are often diminished or absent in the early stages, and become spastic later. The principal characteristics of spinal syphilis are the variability and the instability of the symptoms and the association of meningeal, root, and spinal lesions in the same case.

The cerebro-spinal type is simply a combination of the other two forms, and although either clinical picture may appear alone, the association of brain and cord symptoms is common, usually with one or the other predominating.

The prognosis of syphilis of the nervous system in general is better than that of any other organic disease of equal severity, and a few of the cases recover almost entirely under specific treatment if it is instituted early. Improvement can generally be looked for in a majority of the cases although a few progress steadily to a fatal termination in spite of the most active treatment, and relapses are very frequent and should always be watched for. The prognosis of the parasyphilitic diseases is uniformly bad as to permanent improvement, though remissions for varying periods of time are not infrequent in tabes and paresis.

As regards the influence of mercurial treatment of syphilis on the later occurrence of parasyphilis, there is no evidence that it has any preventive action, or that the clinical picture or time of onset are in any way modified.

In the treatment of syphilis of the nervous system, an important point is prophylaxis. In those affected with syphilis, exposures to the extremes of heat or cold, alcoholic or venereal excesses, trauma, physical or mental overexertion, etc., in fact anything which reduces the vitality seem to precipitate, at times, an involvement of the nervous system. The curative treatment does not differ from that of syphilis in general, but emphasis may be laid upon the importance of its early and vigorous administration, that those cases which are favorably influenced by treatment may receive its benefit before serious destruction of tissue has taken place.

The recent work on the serum diagnosis of syphilis is of considerable interest, and the Wassermann reaction, or deviation of complement, is undoubtedly of great value in the diagnosis of syphilis and parasyphilitic diseases. Butler,³ in reporting his results of tests on 125 cases, reviews the literature in which tests on about 1,250 cases are recorded, and some of his conclusions are as follows: The reaction is positive in from 90 to 95 per cent. of all cases with syphilitic manifestations; in from 70 to 80 per cent. of parasyphilitic diseases; and in 50 to 60 per cent. of latent cases. The reaction may be prevented by antisyphilitic treatment. A positive reaction indicates syphilis, but a negative reaction does not have an equal negative value. "It is diagnostic of systemic infection whether acquired or inherited, and not an organ diagnostic measure." The complexity and delicacy of the technic, however, as it is developed up to the present time, render this test difficult of wide application.

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THE DIFFERENTIAL DIAGNOSIS OF FUNCTIONAL
FROM ORGANIC PALSIES: HEMIPLEGIA, PAR-
ALYSIS AGITANS, OCCUPATION AND
HABIT CRAMPS AND SPASMS

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Nothing in the practice of medicine is more important than the ability to distinguish palsy purely functional, whether psychic or not, from that due to destruction of nerve tissue; for the appropriate treatment of the former variety will obviate the years of disability and suffering which so many unfortunates have undergone through want of diagnostic knowledge on the part of the physicians they have consulted.

At the Congress of Lille,¹ I endeavored to show how often and in what manner, diseases were, if not produced, at least perpetuated by ill-directed statements on the part of medical advisers. I showed how a motor disability induced temporarily by a shock, fright, or even by physical trauma or evanescent disease, was often fixed in the patient's mind by an exaggeration of its gravity, the patient's preoccupation with his state being fortified by the doctor's tactless suggestion.

But it is an equally serious fault to minimize the gravity of a lesion to cheer up a patient, and to appeal to his willpower when he is functionally disabled on account of organic destruction of tissue, or even temporary paralysis of nerve centres or interruption of nerve paths by edema, infection or intoxication. Hence, the supreme importance of correct diagnosis of the cause of paralysis.

A good illustration of these points was afforded by a case recently seen with a physician of Washington. It was that of a young married woman who some years before had undergone ablation of the appendages at the hands of a gynecologist of international fame, who was stated to have been treating her also for syphilis, on account of a right hemiplegia and aphasia. The symptoms had ceded in about six months, and had not recurred until a few days before I saw the patient. I found her lying in bed totally unable to move the arm or leg, which were, however, flaccid and anesthetic. She suffered no pain, there was no hemianopsia, ataxia, nor trembling. I could, therefore, exclude a lesion near the thalamus, which never causes complete powerlessness and is always accompanied by some of the foregoing symp-

toms. The anesthesia at least was probably therefore hysterical, but organic disability is very frequently augmented by additions arising from suggestion of further disability by the mind of the patient or others.

Though the patient expressed inability to sit up, she did so when urged, ostensibly to test the patellar reflexes. The muscles of the abdomen and pelvic girdle were then seen also to contract co-ordinately along with their contra-laterals, though quite unable to perform ordered movements alone. This never occurs in complete palsy by organic interruption of nerve paths; and was, therefore, a positive sign of hysterical palsy.

There was no means of testing the peculiar trepidating and claspings grasp of the truly palsied hand of hemiplegia, nor the "marche en fauche," as the patient could neither grasp nor walk.

Babinski's combined flexion of the thigh and trunk could not be elicited, as the patient professed inability to raise herself in the regular way.

I was not then acquainted with the modification of this sign for which we have to thank Hoover.² This consists in the pressure exerted by the heel of the sound limb upon the floor or bed when the patient tries to lift the opposite leg or to sit up. A normal person synergically presses both heels against the floor when trying to get up from the recumbent position. In a true hemiplegic, full pressure is exerted only by the sound limb, the pressure of the paralyzed limb being diminished proportionally to the defect of the motor neurones, however hard the patient is trying to rise, or to lift the opposite leg as the case may be; a simulator or hysteric on the other hand cannot lift the sound leg without exerting synergic pressure with the heel of the paralyzed leg; and when he is asked to lift the paralyzed leg his feigned attempt is unaccompanied by synergic downward pressure of the contra-lateral limb, this proving that no real attempt is being made to lift the leg.

A further modification of this sign has been described by Zenner.³ This consists in estimating the downward pressure of the thigh instead of that of the heel as employed by Hoover. The writer has tested each of these signs, and finds them both of easy application, and does not feel the difficulty in appreciating the pressure of the heel which Zenner has experienced in employing Hoover's test.

The uninitiated might have been thrown off his guard by the certain history of hemiplegia treated as organic by so eminent a man. I addressed myself, however, to the objective signs. I found no exaggeration of the tendon jerks of the patella, achilles, triceps,

masseter or radialis, no diminution of the homolateral abdominal reflex, no extension of the great toe on stroking of the sole. Both platysmæ contracted normally on forcible depression of the chin. There was no hypotonia, and lastly the palsied arm and leg when suddenly let go after being supported or gradually lifted showed distinct contraction of antagonist muscles and there was no synergic contralateral contraction upon forced efforts. There was no implication of facial or ocular movements and no dysarthria. A paralysis flaccid and absolute, an anesthesia complete and ceasing abruptly at the mid-line comprised the whole syndrome. These characters were sufficient to exclude organic hemiplegia in the present attack, and moreover made it highly probable that the former attack was incorrectly diagnosed; for it is certain that a relapse of cerebral hemiplegia of vascular origin would have been certainly accompanied by distinctive objective signs, especially that of Babinski, which was not the case with this patient.

Were another argument needed, the immediate success of my treatment furnished it; for I told the patient that her hemiplegia was certainly not organic; that it was curable by the education of the movements which I showed her how to make, at first passively; and that on my return visit I expected her to shake hands. The co-operation of the husband, a medical man, was enlisted by explaining the mechanism of the affection in due course. At my next visit, several days later, the patient shook hands with me, and walked across the room, as she had been doing for several days. The slight remaining weakness I assured her would disappear in a few days.

The help derived from the character of a facial palsy was not afforded in this case. As should be well known by now, hysterics sometimes simulate facial palsy, as well as ptosis with or without orbicular spasm or contracture. In them, however, there is always synergic response of the palsied side when the well one contracts; for it is not possible to contract the muscles of involuntary expression homolaterally without long practice. The fact that the frontalis or orbicularis are spared does not, however, negative a lesion; for these are innervated by a separate portion of the facial nucleus (Page May⁴ and Marinesco⁵) in the medulla, and have also a separate cortical centre: accordingly they may escape palsy derived either from the high or lower neurone, as well as in hysteria.

Organic ptosis must therefore be diagnosed by distinguishing the positive signs, such as the constant contraction of the corresponding corrugator supercilii to compensate the loss of the levator palpebræ; though even this may be simulated by a forcible contraction of the orbicularis at the same time, which will give rise to a clinical picture resembling true blephero-spasm with or without palsy. It is distinguished by the twittering and explosive volleying of the true spasm, while the hysterical is like a voluntary contraction, and does not so invariably begin in the orbicularis. A true palsy of the orbicularis is revealed by the sign of Cestan and Dupuy du Temps,⁶ which consists of the raising of the eyelid when the patient attempts to close the eyes while looking down. The palsied eyelid will perceptibly ascend before the eye closes (Charpentier)⁷.

The ptosis caused by the extreme fatiguability one finds in myasthenia gravis must be confused neither with this defect nor with hysteria.

It is sometimes hard to decide that atrophy of muscle is present; for on the one hand, fat may mask wasted muscle, and on the other, general emaciation may make one suppose that the muscles are absent when that is not the case. I need not here enlarge upon the electro-diagnostic criteria of lower motor neurone palsy. They are infallible when used by one knowing the pitfalls of electrical resistance.

It cannot be too widely known that a mere interruption of the pyramidal tract by edema, anemia or perhaps even toxin may give rise to a temporary Babinski sign, which will disappear with its cause. Therefore one should not prognose in a case where such a possibility is not excluded. It is not uncommon that dyscrasic states, such as diabetes and uremia, injure predominantly only one side of the nervous system. Even the causal factor of polineuritis may act only unilaterally, as shown by the striking case of ascending paralysis cited by Camp,⁸ and found post mortem to be solely a unilateral peripheral neuritis without implication either of cord or brain. Nor must its unilateral commencement allow the spasticity of paralysis agitans to be confounded with that of frank pyramidal disease. Here a slight weakness of the achilles jerk sometimes occurs, as Risien Russell⁹ points out. Hysteria, however, cannot be excluded in some Parkinsonian cases; for even the trembling is much influenced by the will, and the spasticity becomes relaxed as the limb is used.

A test I have often used is to suddenly clutch and raise the arm or leg while the patient is engrossed: flaccidity excludes paralysis agitans, and renders probable a diagnosis of psychic affection. The therapeutic test may then clinch the diagnosis. This test is of course not applicable to permanent hysterical contracture, but the general characters of these contractures are not likely to be confounded with the spasticity of paralysis agitans.

Any tremor in the aged accompanied by spasticity is by no means Parkinson's; for the so-called essential or hereditary trembling may not ensue until late in life. For diagnosis of these, we must depend upon their character; for these essential tremors approximate to those found in toxic conditions, *i.e.*, are finer and less regular than that of paralysis agitans.

A special kind of incapacity for movement is that found in occupation cramp. Here the muscles can quite easily perform any movement called for, except the particular ones required by a specific act. It is not difficult to see from this very definition that its pathogenesis is psychic. It is indeed in mechanism a tic, only differing from one in being excited by a particular specific stimulus, *viz.*, the desired automatic act; whereas a tic, in the strict sense, is excited by all and sundry stimulus, indeed independently of any.

It is thus a great error of practice to treat scrivener's palsy by local applications, massage, electricity, or strengthening exercises.

The muscle "cramp" is caused by the idea of the need to write, and is relieved at once by the replacement of that idea by another, such as the idea to perform some other act even by the same muscles; as for instance in the case of the girl who could not write with a pen but could do so quite well with a pencil.¹⁰ Is it not puerile to suppose that incapacity due to a weak muscle could extend to a pen without doing so to a pencil?

The whole matter of the tics cannot be entered into here save to mention one form, torticollis. This is a palsy in the sense that the head cannot be voluntarily straightened whether contracted constantly (tonic) or intermittently (clonic). The agonists of the desired act are overcome by their antagonists. Functionally speaking the muscles are rarely groupable in terms of a particular peripheral nerve, but are always so in terms of physiological acts. They therefore correspond to cortical, not neural groupings. The author

has recently considered the diagnosis between tic and true spasm, and has placed the differential points in the form of a table.¹¹

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DIFFERENTIAL DIAGNOSIS BETWEEN EXTRA-UTERINE PREGNANCY AND EARLY ABORTION

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In 1907 I made a careful study of twenty-eight cases of ectopic gestation which a short time before had been admitted to Lebanon Hospital, in all of which the diagnosis was proved to be correct on the operating table. I operated upon twenty-seven of these, and a friend of mine on one in another hospital. The last patient having entered the hospital where the diagnosis of extra-uterine pregnancy was made, but as her condition rapidly improved she refused opera-

tion and went home. A few days later another hemorrhage took place; she was taken to a sister institution and operated upon.

A large number of these patients were brought in the ambulance; in a number of instances with the diagnosis of incomplete abortion, and in several cases they had been curetted. This diagnosis was frequently made by careful men with large experience.

In going over the cases I was impressed with the fact, as I have been before and since, that it is the exception to find a case presenting classical symptoms of ectopic pregnancy, and that in order to make an exact diagnosis it is necessary to take most carefully into consideration all of the symptoms that are presented by a patient who is suffering from a dérangement of the menstrual flow, especially if it is associated with pain in the pelvis.

In my experience the condition most frequently confounded with extra-uterine pregnancy is early abortion.

In both conditions we usually have a temporary cessation of the menstrual flow followed by pain that is referred to the uterus associated by more or less hemorrhage. This flow may cease entirely or continue with greater or less severity. In both conditions, if allowed to go on, there is a rise in temperature. It usually differs in the two and for this reason a most careful record should be kept. In both there is an increase in the size of the uterus which may or may not be associated with a tender tumor in one or both tubes. I have seen a number of cases of extra-uterine pregnancy where the tumor at the side of the uterus was not tender; of course this is the exception, but this is a disease associated with many exceptions. With both of these maladies there are the mammary changes and digestive disturbances of early pregnancy.

In one instance I was called upon to treat a woman who had had a number of abortions on previous occasions, and who considered herself quite an expert in their production. When her menses were a few days overdue she passed a catheter into the uterus, a slight hemorrhage took place; but things did not go on as formerly and I was called in and made a diagnosis of ectopic gestation which was proved to be correct by celiotomy. It is needless to state that the elements in this case required the most careful analysis before a correct diagnosis could be made.

Let us now consider in detail the common cardinal symptoms

of these grave maladies and see, if in most instances at least, a proximate diagnosis cannot be made, for the treatment, and frequently the patient's life, depends upon it. I am thoroughly convinced that many a woman has been allowed to die from extra-uterine gestation because of the incorrect diagnosis of "sepsis following abortion."

Cessation of the menstrual flow or a marked diminution in the amount, from one to four weeks, is usually noted. In rare instances no change has taken place and the woman has no idea that she is pregnant. I had a case where a woman did not menstruate between the birth of a child and the rupture of an extra-uterine pregnancy. In a large majority of cases the woman believes herself pregnant.

In extra-uterine gestation the pain is usually of very sudden advent, cramp-like in character and associated with marked pallor and faintness. Not infrequently there is syncope. These symptoms, especially the pallor and faintness are of most important diagnostic value, but frequently receive little attention. The patient begins to flow, usually moderate in amount, although I have seen cases where it was necessary to tampon the uterine cavity with gauze to stop a most severe hemorrhage. A few shreds and at times large pieces of decidual membrane with clots are expelled and the patient or possibly her medical attendant thinks an abortion has taken place. The flow diminishes in a few days, but rarely ceases entirely. This is an important symptom and is of great significance when associated with marked pallor and a weak pulse. At the end of a week or two the patient has another attack similar to the first, but usually more severe. Now the temperature is slightly elevated as a rule not above 101° F. and the abdomen is slightly distended. The hemoglobin will be between 30 per cent. and 70 per cent. As a rule there is no polynuclear leucocytosis. These two last signs are of diagnostic significance.

The symptoms heretofore mentioned are due to successive ruptures or, more strictly speaking, partial ruptures or tubal abortion with the escape of blood, which may be small or large in amount. The marked pallor and thready pulse is at first due to shock caused by the sudden escape of blood and possibly the products of conception into the peritoneal cavity, and not necessarily to the amount of blood that has escaped from the ruptured vessels. I have seen cases

of marked collapse with extreme pallor and a very weak pulse, where, when the peritoneal cavity was opened, it was found that an insignificant amount of blood had escaped.

In abortion, the onset of the pain is not so sudden or anything like so severe as in extra-uterine pregnancy. There is seldom, if ever, any blanching of the face, but it usually has more color than normally until after there has been a severe loss of blood. If a careful search is made an embryo may be found in the clots expelled from the vagina and if this is not the case a microscopical examination, (which is frequently not practical and in every instance takes a good deal of time) will show chorionic villi in abortion and decidual membrane in extra-uterine pregnancy.

Uterine hemorrhage is usually much more severe in abortion, but diminishes very markedly on complete expulsion of the products of conception and ceases entirely in a few days. Unless the hemorrhage has been very profuse the pulse is regular, full and strong in character, and when the hemorrhage has been severe it usually regains its good character very soon after the flow has ceased.

By vaginal examination in both conditions we find a large uterus with an open cervix from which blood is escaping. It is usually more open in abortion than in extra-uterine pregnancy. In ectopic gestation there is generally a very sensitive tumor in one of the tubes, in rare instances in both. I have seen several cases where there was no tenderness on vaginal examination. This tumor is frequently fairly movable and as a rule from one to two inches in diameter with one axis at least twice as long as the other. It is usually associated with a full boggy feeling in Douglas's pouch, which is due to free blood in the peritoneal cavity. This feeling is easy to describe but is many times very difficult to detect. There is a class of cases, and it is not rare, where a large amount of blood has escaped and been held by adhesions with absorption of the fluid portion and a large hard clot had been left behind. This may be located at either side or behind the uterus and not infrequently extends into the abdominal cavity.

In making the diagnosis of extra-uterine pregnancy most writers state that as a rule quite a time has elapsed since the last pregnancy. My experience does not bear this out. In the fifteen cases which are before me the last pregnancy antedated the ectopic

gestation, viz., 2 years; 2 years; 3 years; 7 years; 6 months; 1 year; 9 months; 2 years; unknown; 7 months; 18 months; 2 cases no previous pregnancies; 6 months; 11 months. These records are similar to many others which I have. The interval is scarcely as long as the average during the child-bearing period.

If the interior of the uterus is explored and found to be empty and especially if it is curetted and hemorrhage continues, the probability is that we have an extra-uterine pregnancy to deal with.

If the cul-de-sac of Douglas is opened, blood will escape in ectopic gestation and not in abortion. This procedure is rarely, if ever, resorted to to make a differential diagnosis between these two maladies.

RECAPITULATION

EXTRA-UTERINE PREGNANCY

EARLY ABORTION

- | | |
|---|--|
| 1. Advent is sudden. | Rarely sudden. |
| 2. Pain is severe very early. | Not severe early. |
| 3. Blanching of the face early. | Blanching of the face late, if ever. |
| 4. Pulse very feeble and rapid early. | Pulse strong and full until late. |
| 5. Hemorrhage usually not severe but persists, even after the uterus has been thoroughly emptied. | Hemorrhage usually severe early and markedly diminishes after the uterus is emptied and ceases entirely in a few days. |
| 6. At first there is no elevation of temperature, and later it is rarely above 101° F. | Frequently, especially if there is sepsis, the temperature is very much elevated. |
| 7. At one side of the uterus there is usually a very tender tumor, which is, as a rule, movable. | There is no tumor unless there is infection, and then it is rarely movable. |
| 8. Boggy feeling behind the uterus. | Not present. |
| 9. Usually the cervix is very slightly open. | It is open especially if part of the products of conception are still in the uterus. |

- | | |
|--|---|
| 10. Shreds, decidual membrane and blood only escape. | An embryo may be found, if not, the microscope will show chorionic villi. |
| 11. Late there will be marked diminution of the hemoglobin (30 per cent. to 70 per cent.). | No marked diminution of hemoglobin. |
| 12. Rarely if ever polynuclear leucocytosis. | Frequently present, especially if there is infection. |
| 13. If the cul-de-sac of Douglas is opened blood will escape with possibly an embryo. | No blood will escape. |
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A PATHOGNOMONIC SYMPTOM (OR SIGN) OF APPENDICITIS NOT HITHERTO DESCRIBED—A QUESTION OF PRIORITY

To the Editor of the ARCHIVES OF DIAGNOSIS:

In the July (1908) issue of the ARCHIVES OF DIAGNOSIS, I note that Dr. H. Illoway, of New York, announces a "*Pathognomonic Symptom of Appendicitis Not Hitherto Described.*" The doctor is laboring under a mistake. He will find his views are completely anticipated by my article in the Annals of Surgery, 1896, in an article entitled "What Causes the Pain in Certain Cases of Chronic Appendicitis?" I have also described this "sign" dozens of times during the past twelve years. See Annals of Surgery, April, 1901.

If the doctor will review the literature for a dozen years he will find the idea he revives repeated by me in works on the "Appendix," as in Kelly, Deaver, and Morris. If what I have advocated since 1894 be true, that trauma of the psoas muscle produces perityphlitis (appendicitis), is it not evident that trauma of the psoas, activity of the psoas would cause pain if an inflamed appendix rested on it? See Dr. Burkholder's letter to the New York Medical Journal on "Byron Robinson's Theory of Appendicitis," July, 1907.

Dr. Illoway may find in the literature that I originated similar views in regard to the left psoas producing mesosigmoiditis for the past dozen years, see Medical Standard, 1907, also Medical Standard for September, 1908. For ample views on psoas trauma compromising viscera, see "Byron Robinson's Abdominal and Pelvic Brain," 1906.

Chicago, 1908.

BYRON ROBINSON.

NEW YORK, September 21, 1908.

DEAR DR. ROBINSON: Whilst at Sharon Springs (where I spent my vacation taking the baths) I received, on August 31st, from Dr. Heinrich Stern, editor of the ARCHIVES OF DIAGNOSIS, a copy of your letter addressed to him with a note asking if I would reply thereto.

On September 1st, I replied to him as follows:

"MY DEAR DOCTOR STERN: Your favor of August 30th, with copy of letter of Dr. B. Robinson, duly to hand.

"If you write to Dr. Robinson, kindly say for me that as soon as I return from my vacation I will look into this matter and reply to him myself.

"Up to the present his (R.'s) writings, except as to his book on the Peritoneum, were not known to me, as I do not take the Annals of Surgery, and I found nothing like what I have described in the

article published in your valuable journal in any of the works on appendicitis or treatises on medicine consulted by me in the preparation of my article on the "Prophylaxis of Appendicitis" (N. Y. Medical Journal, Feb. 21, 1903), nor in Kiliani's "Surgical Diagnosis," which I consulted some time later, nor have I come across it in any of the medical journals that I take.

"Truly yours,
"DR. H. ILLOWAY."

Returned from my vacation, I have made it my business to look up at once the references given in your letter referred to above. I have read the article in the *Annals of Surgery*, 1896, have noted what you say as to the pain produced by the action of the psoas muscle, etc., and I acknowledge the great value of the work done by you as there described.

I have also looked up Kelly, Morris, and Deaver, and nowhere do I find any mention of a pathognomonic sign of appendicitis, available for diagnostic purposes and brought out by a certain method of examination, as set forth and described by me in the *ARCHIVES OF DIAGNOSIS*.

You certainly do not in the article referred to, and Kelly (who refers to you frequently on other points) makes no mention in his chapters on Diagnosis of any such sign or symptom, as I have described.

I do not claim that I have discovered the cause of the pain: all that I claim is a sign or symptom that I regard as pathognomonic of appendicitis, that can be brought out by a certain method of examination—and of that I can truly say, it has hitherto not been described.

I am certain that if you will read my article dispassionately, you will find—and I am sure that you will so acknowledge—that I did not trench upon your grounds.

Had I known of your work at the time—and I certainly regret that I did not—I should have referred to it as the strongest proof for the correctness of my observation, and in a further paper, of which this in the *ARCHIVES* is merely a part, I shall so refer to your article as the laboratory demonstration for the correctness of my observations.

I am,

Very truly yours,
DR. H. ILLOWAY,

General Retrospects

NEW METHODS FOR THE CLINICAL DETERMINATION OF PULSE-QUALITIES (A DIGEST OF THE IMPOR- TANT LITERATURE OF 1906 AND 1907).

By WILHELM MUELLER

NEW YORK

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- MASING, W.: Über das Verhalten des Blutdrucks bei jungen und bei bejahrten Menschen. (Deutsches Archiv f. klin. Med. 1907, p. 41.)

Many modern clinicians have advanced new methods and have brought forth new apparatus for the recognition and determination of cardio-vascular disease. While the older physicians were satisfied with a general diagnosis and estimate of the affection, the latter-day clinicians strive to recognize the exact pathological state by means of instruments of precision and refined methods of examination. The following brief review of the exact methods for the determination of

the affections of the circulatory organs devised during the past two years may be of decided value to the practitioner.

According to *Fellner* the two pulse-qualities besides rhythm and frequency which have to be taken into consideration are (a) the tension, and (b) the volume. The pulse tension, which has been studied by means of sphygmomanometry for a number of years, is regarded as the more important quality, while, according to the author, the determination of the pulse-volume has been relegated to the rear to a certain degree. Even in recent clinical reports such statements are met with, as the pulse is good in spite of low bloodpressure, or it is weak in spite of high tension. The author has endeavored to determine the pulse-volume, and he has arrived at similar results as Strasburger and Sahli before him. He made his observations by the synchronous examination of the diastolic and systolic pressure. The systolic pressure corresponds to the height, and the diastolic tension to the initial stage of the pulse-wave; the difference between them is the real pulse-volume. The author confirms the observations of Marey (*la circulation du sang*, Paris, 1881) that tension and volume of the pulse are two different qualities. As a rule, a pulse even of high tension has a small volume, and vice versa, one of low tension has a considerable size. The tension expresses the constant factor of the bloodpressure, the level from which each pulse-wave ascends; the pulse-volume expresses the fluctuation of the bloodpressure, that is, the fluctuation during the cardiac pulsation. It is difficult to determine the fulness of the arteries or their systolic blood increase according to the volume of the pulse or the pulsatory fluctuations. Taking into consideration the fact that we have in the circulatory system a continuous current with rhythmically interrupted increase (*Zufluss*), the pulsepressure depends upon the relation of increase and decrease (*Abfluss*). The flame-tachograph of von Kries enables us to confirm the fact that the velocity of the blood current (recognized by the increase and decrease of the size of the flame) changes with the bloodpressure. *Fellner* believes that only the amount of blood traversing the arterial branch on which the examination is made can be determined by the arterial pressure curve, and not the entire amount of blood expelled by the left ventricle in systole. Alterations in the lumen of the arteries, especially at the place of branching from the aorta, are of marked influence upon the amount of bloodpressure. In aneurysm, for instance, the bloodpressure may be diminished considerably but the current velocity may be maintained.

The elasticity of the blood vessels is of great significance; it varies in old and young, in healthy and diseased individuals, and even in the same person in different vascular regions. The examination of the pressure in a single branch of the arterial system does not,

therefore, justify general conclusions concerning the bloodpressure. In the rigid vessel, cardiac energy demonstrates itself in the form of current acceleration lasting but during the systolic period. In the elastic vessel, on the other hand, a portion of the cardiac energy is utilized for the dilatation of the vascular system during systole. This fact explains the influence which the elasticity of the vessels exerts upon the relation of pulsepressure and current rapidity. Arteriosclerotic changes may vary in degree in the various arterial regions, and, as has been shown by *Dunin*, the pulsepressure may differ in the same individual in the various parts of the organism, being dependent upon the degree of rigidity of the different branch-vessels and the resistancy resulting therefrom.

Fellner advances the following conclusions: Pulsepressure determinations permit the recognition of the causes of renal insufficiency, of the types of circulatory disturbance, of the improvement or aggravation of the pathological process, of the influence of the treatment. The determination of pulsepressure permits certain conclusions concerning the relative current rapidity.

Strasburger, who has employed the sphygmomanometer of Riva-Rocci with the improvements of von Recklinghausen, has observed that this instrument indicates the maximum pressure, and that the diastolic pressure corresponds to the minimum pressure. *Strasburger* maintains that palpation of pulsepressure gives more exact results in venous hyperemia than does sphygmomanometry, which latter may be productive of many wrong interpretations. *Masing* observed that muscular activity causes an increase of the maximum as well as the minimum bloodpressure, and that the minimum pressure is least influenced by muscular exertion.

Hoffmann has published an excellent article on cardiac arrhythmia and the graphic methods of its demonstration. He has demonstrated that nearly all the types of cardiac arrhythmia may arise on an organic as well as on a functional basis, and that the important question whether in a given case the faulty activity of the heart is due to an organic or functional disease, cannot be answered by the analytical method alone. *Deneke* and others have described a special form of cardiac arrhythmia which results from the disturbed irritation transmittance (Reizleitung) from the auricle to the ventricle. The synchronous registration of the venous and arterial pulse and of the apex beat enables us now to definitely discern such disturbances. It is true, however, that the analysis of the venous pulse as far as the significance of the various waves is concerned, is in more than one respect quite uncertain. The venous pulse only indicates the activity of the right auricle, the arterial pulse and the apex beat only that of the left ventricle, while the activity of the right ventricle and of the left auricle has not been definitely determined as yet.

Rautenberg has made use of Minkowski's method in determining the pulsation of the left auricle. This method, which is based upon the introduction of a balloon into the esophagus, is somewhat cumbersome, but appears to yield quite trustworthy results. *Rautenberg* has also graphically demonstrated the pulsations which are visible on the chestwall, and which may show well-marked curves of auricular contractions, especially in young individuals.

Returning to our subject of sphygmomanometry, which, to be sure, stands in close relationship to sphygmography and cardiography, we find that since *Masing* has pointed out the importance of the determination of the diastolic pressure in addition to that of the systolic pressure, that many clinicians have discarded the simple systolic pressure determinations, as devised by von Basch, Gärtner, Riva-Rocci, and others. The oscillatory bloodpressure determination as executed by the apparatus of von Recklinghausen renders it easy to determine the height of the diastolic as well as of the systolic bloodpressure, and gives quite accurate results. When employing the instrument of von Recklinghausen, the diastolic pressure may be recognized by the marked oscillations of the manometer while the systolic pressure is determined by the disappearing pulse under the palpating finger and the less-marked oscillations. It is the consensus of opinion that in chronic interstitial nephritis there is nearly always a constant increase of systolic and diastolic bloodpressure. Transitory augmentation of bloodpressure occurs frequently on a nervous basis. In arteriosclerosis temporarily or permanently increased bloodpressure is often encountered without the presence of a renal disease.

The difference between systolic and diastolic bloodpressure, pronounced in centimeters of water, is the pulse-amplitude. The latter multiplied with the pulse frequency in the minute is the product of the amplitude-frequency. The second volume of the heart, calculated from the product of the amplitude-frequency, according to Hoepfner, gives us a good insight into the heart's action if vasomotor influences do not supervene as disturbing factors during the examination.

A new method for the examination of the circulatory organs is the one advanced by Einthoven by means of the string-galvanometer (Saitengalvanometer). Einthoven and Cremer have demonstrated that the cardiac function may be represented by the electrocardiogram, which, normally, shows a typical number of waves. Kraus and Nikolai have tried to employ this method for clinical purposes. They found that the form of the curve of the electrocardiogram undergoes alterations in diseases of the myocardium, and they assert, that specific alterations of the form of the curve point to specific disturbances of the heart.

THE CLINICAL SIGNIFICANCE OF SUBNORMAL TEMPERATURE (A BRIEF RÉSUMÉ OF THE LITERATURE FROM 1903 TO 1908)

By L. BERTRAM SACHS

New York

LITERATURE

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Although considerable attention has during the last few years been paid to the subject of pyrexia, the study of subnormal temperatures has been neglected and as a rule our attention is only called to this subject when a low temperature of the record-breaking variety has been observed. The source of the body-heat is the oxidation of food, and the nervous system balances heat-production against heat-loss through the regulation of the vaso-motor system. In other words, the temperature of the body is the temperature of the blood. In general, mouth-temperatures are not as reliable as rectal temperatures. *Laidlaw* states that the rapid breathing of cold air, even though it occurs through the nasal passages, will lower the thermometer reading, and so in all cases in which dyspnea is a prominent symptom, mouth-temperatures are to be regarded with suspicion. Normally, the temperature ranges from 97.2 deg. F. between the hours of two and six A.M. to 99.5 deg. F. between four and eight P.M., and only when the temperature remains for some time at 97 deg. F. can it be considered subnormal. *Benedict* has found that there is no tendency to an inversion of the temperature-curve by inverting the daily routine

of life. Of the large number of drugs causing hypothermia, alcohol stands foremost. When alcoholics are exposed to cold, there is a rapid fall in their body temperature. Reinke has observed cases in which the thermometer recorded 86 and 87 deg. F. The lowest reported temperature in the alcoholic is 71.8 deg. F. In 50 cases of alcoholics selected at random Macewen found that the rectal temperature only reached 98 deg. F. in two instances, 28 per cent. had temperatures varying from 98 to 97 deg. F.; 30 per cent. had temperatures from 97 to 96 deg. F.; 24 per cent. had temperatures from 96 to 95 deg. F.; 12 per cent. had temperatures from 95 to 94 deg. F.; and 6 per cent. had temperatures from 94 to 93 deg. F. These figures show that half of the cases of alcoholics have temperatures below 96.5 deg. F. In differentiating this condition from concussion, apoplexy, and morphin poisoning these figures should be of some diagnostic value, since in the latter conditions subnormal temperatures are not as frequent. *Laidlaw* states that when a subnormal temperature is produced by antipyretics it is an indication of collapse, as these drugs only reduce temperature when there is pyrexia. Morphin in non-poisonous doses produces a slight fall in temperature by diminished production of heat. Phenol in poisonous doses also calls forth reduction of body-heat. Cases of cardiac disease in a large percentage run subnormal temperatures. *Laidlaw* found hypothermia in 70 per cent. of a series of recurrent and current cases of cardiac disease. Uncompensated mitral stenosis forms a large proportion of these cases. Hypothermia, according to this author, is caused by the failure of circulation. Cases of heart diseases presenting subnormal temperature offer a poor prognosis.

In children, the principal conditions in which hypothermia is present are, exposure to cold, severe fluxes, malnutrition, athrepsia, prematurity, inanition, collapse, heart disease, anemia, hemorrhage, and, for a short period, after acute diseases (*Northridge*). As a rule when the temperature remains persistently below 97 deg. F., death soon takes place. In children of premature birth a constant subnormal temperature is a bad sign. Exposure to cold may reduce the temperature of the premature-born child to 97 deg. F., but the temperature rapidly rises to normal when the child is brought into a warm room.

Hypothermia is frequently observed in melancholia, brain abscess, stuporous states, general paresis, idiocy, and occasionally in conditions of great excitement. The occurrence of subnormal temperature in conditions of great excitement, according to *Church* and *Peterson*, indicates approaching collapse.

Following acute or prolonged fevers, as pneumonia, influenza, typhoid fever, etc., hypothermia is of common occurrence. During the convalescence from typhoid fever hypothermia is very common.

For days the temperature may not rise above 97 deg. F., especially so in protracted cases, and in those instances where great emaciation has ensued. This fact was observed in 158 out of 168 cases studied by *McCrae*.

Heinrich Stern maintains that a subnormal temperature is frequently the normal temperature of the diabetic, and the normal temperature of the healthy individual (99.2 to 99.4 deg. F. in the rectum) when encountered in the diabetic denotes often a febrile state.

Progress of Diagnosis and Prognosis

GENERAL METHODS OF EXAMINATION—SYSTEMIC AFFECTIONS—DISORDERS OF GENERAL MET- ABOLISM—INFECTIOUS DISEASES

Excretion of Sugar in the Urine of Healthy Individuals, and a Method for the Quantitative Determination of Traces of Sugar in the Urine—
B. SCHOENDORFF, *Archiv f. d. gesamte Physiologie*, CXXI, p. 572.

Author examined the urine of 334 soldiers for sugar by employing Worm-Müller's test. He found that glycosuria existed in 94.6 per cent. of all cases. The cause of the glycosuria can only be the nourishment of the soldier, which is rich in carbohydrates, as in 53 individuals from every-day life minimal amounts of sugar were detected in but 15.1 per cent. The Worm-Müller test gives trustworthy results down to 0.025 per cent., but the author wanted to employ a method by which he could detect mere traces of sugar. He selected, therefore, the method advanced by Patein and Dufau, which is based upon the principles (1) to precipitate the nitrogenous substances by mercury nitrate, (2) to add sodium hydrate until there is a neutral reaction, (3) to remove the excess of mercury. (Full description of chemical procedure in the original.) By this method one may determine with great accuracy 0.01 per cent. urinary sugar. Every normal urine, examined by this method, contains from 0.0105 to 0.0274 per cent. sugar; excessive ingestion of carbohydrates may increase the amount to 0.1 per cent. Whether there is a possible regimen after which there occurs no urinary sugar, the author cannot answer at this time.

WESTERN.

The Possible Fallacies of Fehling's Solution as a Test for Sugar in the Urine—J. DIXON MANN, *Medical Chronicle*, Oct., 1908.

The possible fallacies attending the use of Fehling's solution may be grouped under two heads. First, that a positive reaction may be due to a substance other than sugar; secondly, that sugar of pathological importance may be present and yet the reaction negative. In regard to the first objection, it may be said that although one molecule of uric acid is capable of reducing two molecules of cupric oxide, nevertheless one molecule of uric acid may hold back the reduction product of one molecule of copper sulphate, so that the evil provides its own remedy. Creatinine also possesses the property of holding cuprous oxide in solution. Glycuronic acid, often mentioned as a possible source of fallacy, will not reduce Fehling's solution in the conjugated state, as it usually conjugates with phenol or indoxyl. Lactose, although reducing Fehling's solution, does not ferment with

yeast. The second fallacy does not hold true if the rule not to boil the reagent in the presence of urine is observed. Glucose is destroyed by being boiled with strong alkaline solution, but it does not occur if this rule is observed.

SACHS.

Rapid and Exact Determination of the Endreaction in Titrating with Fehling's Solution—W. MENYHÉRT, *Deutsche med. Wochenschr.*, 1908, No. 36.

A drop of Fehling's solution will produce a dark purple (dunkel-violett) ring (copper ferrocyanide) if placed on a strip of fine filter paper treated previously with acetic acid and potassium ferrocyanide, and well dried. The purple ring will be the paler the more copper has been reduced in the solution. It disappears entirely when the titration is finished, while a dark copper oxide spot remains. MILL.

Diabetic Levulosuria and the Detection of Urinary Levulose—L. BORCHARDT, *Zeitschr. f. physiologische Chemie*, LV, Nos. 3 and 4.

A new test for the detection of urinary levulose. It is performed as follows: A few c.c. urine are brought to a boil together with an equal volume of hydrochloric acid (25 per cent.) and a few granules of resorcin; if the mixture turns red, the test-tube in which it is contained is cooled in running water, and the mixture is placed into a beaker or an evaporating dish, after which it is made alkaline with soda in substance and shaken with acetic ether. In the presence of levulose the acetic ether is colored yellow. The test is only trustworthy when there are no indican or nitrites contained in the urine. These substances, however, do not give this test *per se*. In case these two substances are present in appreciable amounts it is best to destroy the nitrites by boiling the urine, which has been acidulated with acetic acid, for one minute before the levulose test is applied. When indican is contained in such quantity that blue coloring matter is found in the acetic acid, it should be removed before testing for levulose by shaking equal parts of urine and Obermeier's reagent with chloroform; then, the mixture is diluted with one-third its volume of water, a few granules of resorcin are added, and the whole is brought to a boil and manipulated as detailed before. Santonin and rheum, if taken by the patient, may interfere with the test by causing misinterpretations. Large amounts of urochrome should be removed by adding to the urine an equal volume of hydrochloric acid (25 per cent.) and shaking the mixture two or three times with amyl alcohol. This test for levulose is positive down to a dilution of levulose 1:2000 (0.5 per cent.), and even when dextrose is present in the urine at the same time. Glucose, lactose, maltose, arabinose, and glycuronic acid do not react to the test, neither do acetone, aceto-acetic ester, indican (when alone), nitrites (when alone),

urobilin and bile pigments. The intensity of the reaction varies between pale-yellow and red-bronze; the narrowest spectrum is a band between b and F (green). The urine of 100 healthy individuals and non-diabetic patients, examined by this levulose test, never contained levulose, and in two instances a red-purple (rotviolet) pigment of unknown nature was obtained.

WESTERN.

Clinical Significance of Bile Pigments in the Urine—OBERMAYER and POPPER, *Wiener klin. Wochenschr.*, 1908, No. 25.

Bile pigments may always be demonstrated in the normal human urine by means of the iodine contact and a modification of Bouma's tests. The amount of bile pigment varies in accordance with the intensity of the urinary color. The excretion of biliary pigments is pathologically increased in a number of affections in which there is no concomitant skin discoloration. Non-febrile affections which were not known to be regularly accompanied by choluria are cardiac diseases or myocardial affections with hyperemic manifestations, and atrophic cirrhosis of the liver. Febrile diseases accompanied by increased excretion of bile pigments are croupous pneumonia, acute articular rheumatism and a group of pleuritic exudates. In pulmonary tuberculosis with marked elevation of temperature there occurs usually no urinary excretion of biliary coloring matters.

WESTERN.

Quantitative Blood Examinations—H. P. T. OERUM, *Deutsches Archiv f. klin. Medizin*, XCIII, p. 356.

Author employs for the determination of the blood quantity the method of Haldane, which he has modified in some respects. The person to be examined inhales a definite volume of CO; before this is done the combining power of the oxygen is determined, after this the procentual saturation of the blood with CO is ascertained. The amount of blood may be calculated from these two factors. The method is quick, simple and exact; author has obtained in healthy individuals certain values which show that the average quantity of blood in the human organism amounts to about 5 per cent. of the total weight. Among, pathological conditions chlorosis and the various anemias were subjected to examination. In chlorosis he demonstrated increased blood volume but decreased hemoglobin contents; in "primary" anemias, appearing after fasting or in the dark, atrophy of the blood, that is, decrease of the blood volume, will be encountered.

RICHARD.

Serum Diagnosis of Syphilis—W. J. BUTLER, *Jour. A. M. A.*, Sept. 5, 1908.

The serum reaction for syphilis is specific; it is found positive in from 90 to 95 per cent. of all cases with syphilitic manifestations; it is found positive in 50 to 60 per cent. of latent cases; it is found

positive in from 70 to 80 per cent. of parasymphilitic diseases. The reaction is in many cases influenced by treatment of the patient and it is not improbable that this number would be greatly increased if the reaction were pursued throughout prolonged treatment. A positive reaction indicates activity of the specific virus; but while a positive reaction points to syphilis, a negative reaction does not have an equal negative value. It is diagnostic of a systemic infection whether acquired or inherited and not an organ diagnostic measure. The reaction will be found of enormous advantage in differential diagnosis in every branch of medicine. WESTERN.

- **Comparative Experiments on the Presence of Complement Binding Substances in the Serum and Urine of Syphilitics**—U. J. WILE, Jour. A. M. A., Oct. 3, 1908.

The following conclusions are drawn: the urine in a large percentage of cases of syphilis contains substances which behave in the same way as the antibodies in the serum of the same cases. These substances seem to appear a little later in the urine than in the serum and at times are present in one and not in the other and vice versa. The diagnostic value of the reaction in the urine must for the present be viewed with caution, inasmuch as in two per cent. of the total number of cases observed by the author a positive reaction was found in the urine while the serum in these cases was negative. RICHARD.

The Cutaneous Tuberculin Reaction (v. Pirquet) in the First Year, More Especially in the First Half Year of Life—F. SIEGERT, Deutsche med. Wochenschr., 1908, No. 39.

Author has employed a 25 per cent. tuberculin ointment. He concludes that the cutaneous tuberculin reaction is specific and depending upon the same factors irrespective whether used in the old individual or in the very young nursling. It indicates the onset of the disease as well as the improvement. Even the most minute tuberculous focus will bring about a reaction. Whenever the reaction does not ensue there is either no focus, or the cutaneous reaction is temporarily suppressed by other affections (measles, etc.), or death is imminent. MILL.

Kelling's Biochemical Reaction for the Diagnosis of Malignant Disease—WIDERÖE, Norsk. mag. for lægevid., 1908, No. 2.

Hemolytic examination of fifty patients according to Kelling's method. Twenty-five cases were affected with carcinoma or sarcoma. Of these 64 per cent. showed positive results, and among these the diagnosis of malignant tumor was positive in 24 per cent. and very probable in 40 per cent. The lower an individual is physically the more readily will ensue a negative reaction. Among 25

cases, who were not affected with a tumor, the hemolytic reaction proved negative in 22 instances and was positive in three instances (2 diseases of the blood and 1 pneumonia). JESSEN.

A Biochemical Reaction for Diagnostic Purposes—PANS, Norsk. mag. for. lægevid., 1908, No. 2.

Author modified Kelling's method by employing but 2 cc. instead of 10 cc. blood, and by utilizing the hemolysis glass of Hamburger. Ninety individuals were examined, 60 patients and 30 healthy persons. In patients affected with cancer 65 per cent. of positive reactions were obtained; in uremia without carcinoma hemolysis also ensued but it appeared very rapidly (one-half hour). The reaction seems of value in the diagnosis of surgical affections of the kidney. JESSEN.

The Non-Relationship of Active Cellular Division to the Prognosis in Malignant Disease—G. McCONNELL, Jour. A. M. A., Sept. 12, 1908.

The author's results prompt him to maintain that the clinical course of the disease has very little relation, if any, to the number of actively multiplying cells in a given specimen of neoplasm, and that it is therefore clear that it is not wise for the pathologist to attempt to make any prognosis concerning the duration of life of the patient by drawing conclusions from his microscopic examination, and that it does seem advisable not even to suggest that the tumor is apparently taking on a rapid growth, as this could easily give the clinician an incorrect idea. WESTERN.

The Blood Picture in Myxedema—BENCE and ENGEL, Wiener klin. Wochenschr., 1908, No. 25.

Authors found in five cases of myxedema relative lymphocytosis and hypereosinophilia. They ascribe the lymphocytosis to a lymphoid metaplasia of the bone marrow. The hypereosinophilia is probably caused by the positiv-chemotactic substances which have entered the circulation as a result of the myxedema. RICHARD.

Metabolism in Myxedema—E. BENJAMIN and A. v. REUSS, Jahrbuch f. Kinderheilkunde, LXVII, No. 3.

In myxedema there is a marked inclination for nitrogen retention. There seems to be no retention of Ca or Cl. Phosphorous retention, on the other hand, may also be the rule. RICHARD.

The Blood in Acromegaly—G. FRANCHINI, Berliner klin. Wochenschr., 1908, No. 36.

In acromegaly there occur frequently eosinophile and polynuclear blood changes and chemical alterations of the blood composition, especially a certain degree of lipemia and an increase of the mineral constituents. MILL.

Graves' Disease and the Thymus Gland—F. CAPELLE, Münchener med. Wochenschr., 1908, No. 35.

Author advocates the examination of the thymus gland in every patient affected with Graves' disease. This may be accomplished by an examination with the Röntgen rays or by percussion. When the thymus is found to be considerably enlarged it is a contraindication for surgical intervention. The instances of sudden death which ensue not infrequently after the successful removal of the struma (acute cardiac collapse) may be due to the status thymicus of the patients.

MILL.

The Blood in Periodical Acetonemia of Children—R. HECKER, Münchener med. Wochenschr., 1908, No. 36.

In three cases of periodical acetonemia there was demonstrated a pathological lymphocytosis during or shortly before the attack. In two of the cases the lymphocytosis continued during the attack-free period. The blood-picture corresponds to a condition occurring in the earliest life of the infant and has to be interpreted as an inhibition of development. The periodical acetonemia of older children is not an accidental occurrence but a constitutional anomaly (disturbance of fat-chemism).

MILL.

Albumin-Metabolism in Fever—K. LOENING, Klinisches Jahrbuch, XVIII, p. 199.

Not every infectious disease causes albumin disintegration, and not every patient who is free from fever gains body-nitrogen. Certain affections cause always loss of nitrogen while other diseases are accompanied by loss of albumin in certain cases only.

ZIMMER.

Clinical Investigations of Early Rachitis—E. WIELAND, Deutsche med. Wochenschr., 1908, No. 36.

In the new-born, rachitis may be demonstrable histologically, but never clinically. Congenital anomalies of the skeleton must not be confounded with secondary early rachitis of the nursling. These anomalies are but rarely of a true rachitic nature and represent nothing but peculiar developmental disturbances of the skeleton.

MILL.

Symptoms and Condition of the Blood in Pernicious Anemia—J. G. TAYLOR, The Practitioner, London, Aug., 1908.

The symptoms of pernicious anemia are manifold and varied, in one case a gastro-intestinal disorder may be simulated; in another the patient may apparently have a nervous disturbance, or the patient may but complain of weakness, shortness of breath and edema. Blood examinations should be performed almost as often as uranaly-

sis, because by the examination of the blood alone can the diagnosis be at once settled. The recognition of idiopathic pernicious anemia in any case with obscure symptoms rests on the following alterations of the blood: reduction in the number of erythrocytes, with a high color index, and leukopenia; the occurrence of megalocytes in large numbers, and of normo- and megaloblasts; a lymphocytosis, mostly of over 40 per cent.

WESTERN.

Granulomatosis Textus Lymphatici—LEHNDORFF, Jahrbuch f. Kinderheilkunde, LXVII, No. 4.

The clinical picture is well characterized and should be separately considered from the old designations: malignant lymphoma, adenia, progressive multiple hyperplasia of the lymph glands, malignant aleukemic lymphadenoma, lymphosarcomatosis, Hodgkin's disease and pseudoleukemia. The disease presents itself pathologico-anatomically as an affection of the entire lymphatic-hematopoietic apparatus, and is characterized by the production of peculiar granular tissue in the various organs. The localizations in spleen, bone marrow, pleura and skin are not metastases, originating from the primarily affected glands, but have to be looked upon as independent expressions of the same cause which has given rise to the glandular involvement.

RICHARD.

Contribution to the Etiology of Diabetes Mellitus—L. BLEIBTREU, Berliner klin. Wochenschr., 1908, No. 38.

On account of the findings of two necropsies the author concludes that not only pancreatic disease but also duodenal affections may give rise to diabetes mellitus. In both instances the pancreas was entirely normal, while the duodenum exhibited considerable vascular changes and was affected by multiple fatty necrosis.

MILL.

Tetany in Phosphorous Poisoning—K. WIRTH, Wiener klin. Wochenschr., 1908, No. 38.

The tetanoid manifestations appeared in the author's case very early, and their cessation was followed by a gradual improvement from the phosphorous poisoning. At the period when the tetany was most pronounced acetone and aceto-acetic acid were found in the urine.

MILL.

Varicella in Adults—TRIFOLD, Med. Klinik., 1908, No. 34.

Most text books declare that varicella occurs but exceedingly seldom in adults. According to the official statistics of Trieste there occurred 36 instances of this affection in adults.

MILL.

Recurrence and Pseudo-Recurrence of Scarlatina—FERRARIS-WYSS, Jahrbuch f. Kinderheilkunde, LXVII, No. 4.

Recurrences of scarlatina are rare; they are a complete repetition of the primary affection. Pseudo-recurrences are extremely rare; they appear before reconvalescence has ensued. An exanthema rather similar to that of measles and a conjunctivitis are characteristics of the pseudo-recurrence. Age and sex have no bearing upon recurrence and pseudo-recurrence, which may supervene occasionally in typical forms. The prognosis of scarlatina becomes not graver on account of recurrences.

RICHARD.

Scarlatinal Rheumatism—G. E. WLADIMIROFF, *Archiv. f. Kinderheilkunde*, 1908, p. 325.

Neuritis may be a complication of scarlatina. Neuritis scarlatinosa may appear without swelling of the joints, or with edema of the affected arthritic parts. It may also appear in the form of synovitis serosa.

MILL.

The Pathogenesis of Tuberculous Rheumatism—PONCET, *Gazette des hôpitaux*, 1908, No. 100.

A controversy with Soucques who does not believe in the tuberculous origin of chronic rheumatism. Author relates a number of clinical observations and gives the results of bacteriological and pathologico-anatomical examinations which, according to his interpretation, make it probable that there is a relationship between chronic articular rheumatism and tuberculous infection.

MILL.

Rheumatic Affections in Children—F. L. WACHENHEIM, *Archives of Pediatrics*, Sept., 1908.

There is not sufficient attention paid to the question of prognosis; the average physician is altogether too optimistic as regards the outcome of the rheumatic affections in children, which should always be taken seriously. The immediate danger to life is not great; still, 1 or 2 per cent. succumb either to heart failure from endo- and pericarditis or to exhaustion from chorea. Hospital cases give a worse prognosis than the milder types that visit the dispensary. As to recurrence, the prognosis is not at all good; many of the author's cases returned with relapses, and no doubt many more subsequently turned up elsewhere. In the majority of recurrences we find a recrudescence of the cardiac lesion, but some children are more fortunate in suffering again and again from mild attacks of rheumatism with little or no endocardial involvement. Not until puberty can we notice any tendency of the cardiac condition to become practically stationary. A favorable prognosis should not be entertained before the individual has reached the fifteenth or even twentieth year. Rheumatism in children is a most serious affection, the more so the younger the patient. The prognosis can never be stated to be good, often must be stated to be bad; still oftener doubt-

ful with the prospect of permanent impairment of health and shortening of the expectation of life. WESTERN.

Recurrent Rheumatoid Ovulation Fever—G. RIEBOLD, *Deutsches Archiv f. klin. Medizin*, XCIII, p. 15.

A report of six cases of febrile phenomena at the time of menstruation, occurring in young girls and accompanied by rheumatic symptoms. The condition seemed to be caused by an infection, the number of leucocytes was diminished, there were signs in the endocardium, the serous membranes and the parotid gland; exanthemata were also present. Abortive forms of the disease seem to occur frequently. The bacteriological blood findings were always negative. The height of the affection seems to correspond to the height of ovulation, that is, the rupture of the Graafian follicle. ZIMMER.

Keloids and Tuberculosis—GOUGEROT and LAMY, *Gazette des Hôpitaux*, 1908, No. 101.

The development of keloids in the scars of tuberculous glands operated upon occurs everywhere, but especially often on the neck. Keloids do not develop in all the cicatrices of an individual, and do not even always extend over an entire scar. The development begins in the second or third month and progresses slowly; in the second or third year spontaneous absorption takes place. MILL.

Epidemic Cerebrospinal Fever—B. F. ROYER, *Archives of Pediatrics*, Oct., 1908.

To distinguish epidemic cerebrospinal fever from other forms of acute meningitis, particularly the forms which are characterized by rapid onset, such as pneumococcus and streptococcus infections, and meningitis in the course of fevers, or meningitis following suppurative processes, it is absolutely necessary to do a lumbar puncture and study the fluid withdrawn from the spinal canal. In the absence of the characteristic organism a diagnosis can be made between tuberculous and an acute form of meningitis by a distinctive cell count. In the acute infectious process the cells found in the cloudy fluid are nearly all polymorphonuclear in type and are numerous, while in a chronic process like tuberculosis of the meninges the vast majority of the cells found are lymphocytes, and the fluid is apt to be almost clear and show but few cells. Finding meningococci in the spinal fluid is positive evidence of the disease. With the characteristic symptoms present and a negative bacteriological finding, if a count of from 70 to 98 per cent. polymorphonuclear cells is found the diagnosis may be made of one of the acute types of meningitis; and if the patient lives five days to a week or more, or if he recovers, that type is almost certainly meningococcic. Lumbar puncture is

a justifiable differential diagnostic method to be used in all cases of meningitis. WESTERN.

Eye Manifestations in Malaria—L. CHASTANG, *Archives de Médecine*, 1908, No. 4.

Affections of the external as well as the internal eye may be dependent upon the malarial condition; they may be in direct connection with the malaria, which is proved by the therapeutic test (administration of quinine), or they may result from the malaria-anemia, or from renal and hepatic diseases which have arisen on a malarial basis. MILL.

Kernig's Sign in Tetanus—M. J. ROSTOWZEW, *Berliner klin. Wochenschrift*, 1908, No. 37.

Author has studied experimentally the possible connection of Kernig's sign and tetanus, and comes to the conclusion that this phenomenon is not only one of the early but also one of the late symptoms of tetanus. MILL.

A Dysentery Epidemy at Cherbourg—MAILLE, *Archives de Médecine*, 1908, No. 4.

The onset of the affection occurred without any promonitory symptoms and ensued very rapidly. The time of incubation varied from five to twelve days. The duration of the affection lasted mostly three weeks. There occurred one death among 146 cases. Flies seemed to be the main carriers of the infection. MILL.

Two Cases of Abortive Pneumonia—R. SIMON, *Münchener med. Wochenschrift*, 1908, No. 35.

The cases are interesting because both exhibited the classical clinical picture of croupous pneumonia but terminated favorably after two days. Author opines that the rapid amelioration was due to the slight virulence in these instances of the diplococcus Friedländer. MILL.

Pellagra—R. H. BELLAMY, *Jour. A. M. A.*, Aug. 1, 1908.

Pellagra is a trophoneurotic disease, affecting the cerebrospinal, digestive and cutaneous systems and is characterized by an erythema. The symptoms of the chronic form begin in spring, with lassitude, headache, and anorexia. The epigastrium is usually tense, and there may be nausea and vomiting. Diarrhea of a serous quality soon follows. This may be very severe, numbering ten to forty stools a day. The tongue is inflamed, red and smooth. In ten days to two weeks, as a rule, there develops an erythema, confined to those portions of the body which are exposed to the sun. The erythema is usually bright red in color, very like sunburn, and disappears on

pressure, unless hemorrhagic. There are often vesicles and bullæ, but there is little itching and burning compared to the extent of the process. Toward late summer the patient begins to improve, and he may feel perfectly well during the winter, until the next spring when a recurrence takes place, with greater or less severity. After the third recurrence the patient usually becomes much emaciated; diarrhea increases in severity, and melancholia, increasing to dementia, occurs. There may be edema and foul sweats. Paralysis of the third nerve and changes in the fundus oculi have been observed. There may be epileptiform convulsions, paresis of extensors, and paralysis of the bladder. The knee jerks and all reflexes are much increased early in the disease, but toward the end they are either diminished or abolished. There is no albuminuria as a rule, and ankle clonus is rare. The disease lasts five years, on an average, but may be prolonged fifteen years. The acute form begins with pain in the epigastrium, headache, nausea, and vomiting. This is followed by a severe diarrhea and stomatitis. The stools are often bloody, and occasionally there is bleeding from the gums and tongue. The patient emaciates rapidly. The erythema follows the same course as in the chronic form. There is some elevation of temperature, but not higher, as a rule, than 102 deg. F., usually ranging between 99 and 101 deg. F. There is delirium and a typical typhoid course, which usually ends in death in ten days or six weeks. The author has never seen a patient to recover. WESTERN.

Filariasis Nocturna—J. GRINDON, Jour. Missouri State Med. Ass., Sept., 1908.

All of the intra-human stages of *filaria sanguinis hominis nocturna* may exist, and in the great majority of cases actually do exist, without occasioning any symptoms whatever on the part of the host. In fact a large proportion of the apparently healthy individuals in any filaria-infested country will show great numbers of active embryos in their blood. Morbid manifestations are traceable only to the presence of parent worms in lymph-nodes or elsewhere, but even these in the majority of cases remain quiescent. In a certain proportion, however, symptoms develop, sometimes of a grave character. They may be constitutional or local. The constitutional symptoms are usually sudden in onset, and are often the first to appear; there are general debility and fatigue on exertion, with irregular periodical febrile attacks resembling those of malaria; pain in the back, pelvis and groins, sometimes acute and accompanied by nausea and vomiting. Sometimes mild febrile attacks constitute the only sign. The local symptoms may be such as can be accounted for on mechanical grounds alone, such as obstruction of lymph-channels with resulting dilatation of lymph-vessels, lymph-edema and

lymphorrhagia. Lymph-scrotum may thus be brought about, or when a lymph-vessel ruptures into the kidney or bladder, chylous urine. Chylocele may result from a break into the tunica vaginalis. As rare symptoms are seen chylous diarrhea and chylous ascites. At other times again there supervene graver symptoms of an actively inflammatory nature, such as lymphangitis, often distributed along an extremity, with the usual adenopathy, frequently resulting in abscess, and accompanying fever of septic origin—the so-called “elephantoid” fever. Deep abdominal pain, with fever, suggests the formation of an intra-abdominal abscess. The inconstancy of these occurrences postulates the existence of a contributory cause which is found in infection with one of the ordinary pus-germs. WESTERN.

Echinococcus of the Muscles—G. F. BARADULIN, Wiener klin. Wochenschr., 1908, No. 35.

The echinococcus occurs rather infrequently in the muscles. It may be found in the muscles of the back, the thigh and the shoulders. It occurs oftener in women; the swelling increases especially toward the termination of pregnancy and after parturition. The differential diagnosis from “cold abscess” is difficult.

MILL.

RESPIRATORY AND CIRCULATORY ORGANS

The Clinical Value of Percussion and Friction Auscultation—I. JUNDLL, Zentralblatt f. innere Medizin, Aug. 29, 1908.

The following conclusions are drawn: The friction auscultation for the determination of the contours of internal organs, irrespective of the method employed, is a procedure which has no clinical value at all and even is misleading in every instance. (The author has succeeded in demonstrating that the physical explanation which served as the basis of the friction auscultation, is entirely erroneous). Laënnec's percussion auscultation, the inapplicability of which for the recognition of the boundaries of solid organs has been known for some time, is also not suited for the determination of the boundaries of the hollow abdominal organs lying in contact with each other.

REILLY.

Physical Proof of Enlarged Bronchial and Mediastinal Glands—NAGEL, Jahrbuch f. Kinderheilkunde, 1908, No. 4.

A clinical and pathologico-anatomical confirmation of the fact that enlarged bronchial and mediastinal glands are recognizable by a flattened percussion sound over the fifth and sixth spinous processes of the spinal column.

RICHARD.

Clinical Aspects of Tumors of the Mediastinum—F. SMITHIES, Jour. A. M. A., Sept. 12, 1908.

A detailed report of four cases; they presented a varied range of symptoms. There were certain constant features. In each of the cases there was more or less marked cyanosis, dyspnea and cough. A typical thoracic dullness was noticed in each instance. In one of the cases the heart was displaced by the growth; in another case the cardiac displacement was due largely to the accumulation of fluid in the right pleural sac. In all instances mediastinal infiltration existed. The pressure signs were very interesting. In three of the cases cyanosis and flushing were marked. In all instances there supervened frequently paroxysmal exacerbations, brought on as a rule by exertion or psychic disturbances. In three of the cases there was more or less constant involvement of the vocal cords. In all the cases there was pressure, more or less constant, on the pneumogastric, with tachycardia, precordial distress or abdominal pain as a consequence. Pressure on the bronchi was especially pronounced in two of the cases. In all the cases excepting one the evidences of constant, long-continued pressure were to be seen in the eye-grounds. In but one of the patients was peripheral edema at all constant. Sensations of "smothering," "fulness beneath the breast bone" and a "weight in the chest" were complained of. The cerebral congestion was associated with feelings of fulness in the head (frequently mistaken for fever by the patient), headaches, dizziness and disturbances in vision. Cough was present in all the cases. With the exception of myocardial weakness in two instances the hearts showed no abnormalities.

WESTERN.

Unilateral Temperature Elevations in Affections of the Lungs—H. VOGEL, Münchener med. Wochenschr., 1908, No. 39.

It is a known fact that localized febrile affections may give rise to a more or less elevated temperature in the bloodvessels communicating with the involved area, and that, at the same time, the general body temperature may remain normal. In unilateral inflammation an elevation of temperature may consequently be readily noticed over the affected side. This is easily understood. However, when one considers that there is no direct vascular connection between lung and axilla, it appears strange at first sight that in unilateral lung disease the temperature in the axilla of the same side is higher than on the opposite one, as the local hyperemia and increased heat in the affected lung can hardly influence the axillary bloodvessels. This difference in the temperature is a fact which is noticeable in regions still more distant from each other. In appendicitis even there may occur a distinct elevation of temperature in the right axilla. The diagnostic and prognostic value of the tem-

perature-difference in diseases of the lungs consists in the fact that in affections of both lungs, which hardly ever start synchronously and in the same degree of virulence, one may recognize which side was affected first and which was more involved, and that continued temperature observations as regards the divergency on both sides, will enable one to form an opinion as to the cause of the affection and the prognosis. The temperature-difference runs exactly parallel with the activity of the pathological process; thus, the progress of the affection may be recognized as well as its amelioration. Of course, care must be taken to take the temperatures when the parts are not under the influence of topical applications. MILL.

The Vocal Fremitus in Croupous Pneumonia—J. WOLTER, *Deutsche med. Wochenschr.*, 1908, No. 39.

Author offers the following conclusions: (1) the behavior of the pectoral or vocal fremitus is not uniform in the various stages of croupous pneumonia. (2) Contrary to the findings of Arneith there often occurs an increase of the fremitus in the second stage. (3) It is not certain that this increase is due to the greater conductivity of the consolidated lung tissue, as diminished fremitus has also been observed in such cases. (4) Even in the presence of a pleuritic exudate there may be an increase of fremitus. (5) An occasional obstruction of the large bronchi exerts no particular influence upon the character of the fremitus. MILL.

Absolute Plethysmograms—R. MÜLLER, *Münchener med. Wochenschr.*, 1908, No. 35.

For the purpose of rendering painless and completely anemic the arm which is to be examined plethysmographically, the author dips the extremity around the elbow of which is placed a Riva-Rocci cuff, up to the axilla into mercury, and permits it to remain therein for about one minute. When the blood is displaced, the cuff is inflated to prevent its renewed circulation. MILL.

Photography of Cardiac Sounds—DE MAYER, *Jour. méd. de Bruxelles*, 1908, No. 36.

Author who has employed the apparatus of Einthoven (transmission of cardiac sounds by means of a telephone upon a string galvanometer, and photographing of the oscillations of the latter) in a number of physiological and pathological instances, has obtained trustworthy results. MILL.

Semeiosis of Cardiac Diseases—STRUBELL, *Wiener klin. Wochenschr.*, 1908, Nos. 33 and 34.

Author concurs with the opinion of von Basch according to which angiosclerosis is nothing else but an alteration of the elasticity

of the bloodvessels together with more or less reduced, or even increased, reaction-ability. These vascular disturbances which occur especially in the splanchnic region are the main cause of the general increase of bloodpressure and the secondary hypertrophy of the left cardiac ventricle. The angiosclerotic process runs through the following stages, (1) vasomotor (functional) contractions of the abdominal vessels (pseudo-angiosclerosis) in the nervous, in acute nicotine poisoning and in acute nephritis (in the latter case the contraction of the abdominal vessels is of longer duration); (2) first permanent diminution of elasticity in chronic nicotine poisoning, in alcoholics, supernourished, etc.; first sign of secondary hypertrophy of the left ventricle of the heart which, however, is still ameliorable; (3) more pronounced angiosclerosis in chronic nephritis, (4) latent angiosclerosis (von Basch's); (5) pronounced arterio- and angiosclerosis in which, however, the functional reaction has not entirely disappeared, even in the most advanced stage.

MILL.

The Prognosis of Heart Disease in Children—D. STANLEY, Birmingham (Eng.) Med. Review, Sept., 1908.

One of the most important problems that confronts us in practice, is the future of the child who has a mitral valvular lesion. In general, we make up our minds concerning the future at too early a period in the history of heart lesions in children. Great improvement may and does take place. When the lesion is mitral, social surroundings are good and parents are willing and able to follow out instructions, the heart participates in the general growth of the child and leaves much of its past behind. If there is much valvular deformity, excessive hypertrophy, and pericardial adhesions, the outlook is bad. If a child with cardiac valvular disease grows, there is a better chance for the heart than if it remains undersized and puny. We may in some cases say that the child will grow out of its valvular defect.

SACHS.

Pyopericardium in Children under Twelve Years of Age—F. J. POYNTON, British Med. Jour., Aug. 15, 1908.

The author summarizes the most prominent signs of the pyopericardium, as follows: (1) Progressive muffling of the heart sounds synchronous with enlargement of the cardiac area, together with marked percussion dulness over the pericardium and sometimes posteriorly in the interscapular region. Tubular breathing or absent breath sounds may also be noted in the interscapular region. (2) A rapid and extensive increase of the cardiac dulness upward toward the left clavicle. (3) The pear-shaped outline of a distended pericardium. (4) The abrupt transition from the dulness of fluid to resonant lung tissue. (5) A wavy and diffuse pulsation to the left of the sternum.

WESTERN.

Bronchial Asthma and Cardiac Atrophy—GÖTZL and KIENBÖCK, Wiener klin. Wochenschr., 1908, No. 36.

In two instances of bronchial asthma the Röntgen ray examination showed pronounced inflation of the lungs and remarkable shrinking of the heart. The condition is explained by the authors as being due to the asthmatic seizures causing an increase of the intrathoracic pressure which impedes the flow from the large veins into the heart while the outflow of the arterial blood is not interfered with. When there exists a continuous overexpansion of the lungs a lasting cardiac atrophy must inevitably ensue. One of the cases exhibited, also as a consequence of the asthma, a habitual subluxation of both clavicles.

MILL.

A Case of Perforation of an Aneurism of the Aorta into the Superior Vena Cava—G. KIESERITZKY, Berliner klin. Wochenschr., 1908, No. 38.

The case of a man, 59 years old, who died after the sudden appearance of very pronounced dyspnea and cyanosis. The diagnosis of such cases may be based upon the systolic pulsation of the veins of the neck and a continuous noise accentuated in systole.

MILL.

ALIMENTARY TRACT

A Further Aid in the Diagnosis of Esophageal Stenosis—M. G. SEELIG, Surg., Gyn., and Obstet., Sept., 1908.

Case of stenosis in a child nine years old in which the localization was readily effected by the X-ray (after the usual bismuth ingestion) by having the child swallow a thin gold chain which by reason of its tenuity was easily swallowed, and coiling above the strictured point permitted the taking of clear and differential radiographs.

PAGE.—

Abnormal Motility of the Stomach a Valuable Factor in the Diagnosis of Gastric Lesions—M. R. BARKER, Med. Rec., Sept. 12, 1908.

The diagnosis of gastric cancer is positive when there is loss of gastric motility, characterized by long-continued stagnation of food in the stomach, and the partial or complete absence of mucus in the gastric contents, together with the presence of the Oppler-Boas bacillus. A large accumulation of mucus in the stomach is one of the important elements in the diagnosis of chronic gastritis. A prominent factor in the diagnosis of gastric ulcer is the exaggerated motility of the gastric walls. This is characterized by the absence of any portion of the test meal in the stomach a comparatively short time after the ingestion. Mucus is also almost or en-

tirely absent from the stomach in this condition, being digested as quickly as deposited in the stomach by the ever-present overacid secretion, and being expelled from the stomach as quickly because of the exaggerated motility of the gastric walls. WESTERN.

A New Method for the Examination of Gastric Function—SCHLÄPPER, *Münchener med. Wochenschr.*, 1908, No. 36.

An exact quantitative determination of gastric motility and secretion cannot be accomplished by the employment of Ewald's test breakfast. Sahli's test soup possesses the disadvantage that it cannot always be prepared in the same degree of consistency and with the same amount of fat. The author has devised a soup-powder which contains all the components of the human nourishment (proteid, fat, carbohydrate) in exact combination, and which is colored red with neutral-red. This powder added to 400 cc. water on being warmed and stirred will produce a soup. Care must be taken that the water in which the soup-powder is contained does not come to a boil, as then the albumen will coagulate. The coloring matter of the soup is so intimately combined with the flower and albumen that it cannot be separated therefrom by mere washing. The coloring matter is soluble in a strongly acid medium only and goes into the filtrate, which assumes at once a fainter or more pronounced red coloration. The neutral-red becomes liberated according to the degree of the digestive function of the stomach. The neutral-red is uniformly distributed in the entire gastric contents, and the amount of the coloring-matter which has left the stomach may readily be ascertained if the gastric contents have been secured. As there is no direct absorption from the stomach it is solely the motility of that organ to which must be ascribed the transmission of the neutral-red; and hence the soup containing the latter may be a means to determine motor and secretory power of the stomach. As soon, namely, as the coloring matter (free or incorporated with the soup) enters into the small intestine it becomes absorbed and is finally carried into the urine. From the observation of the urine, which is more or less red-colored, we may determine the length of time which it has taken for the soup to reach the duodenum, and also the total motor and secretory function of the stomach. The method is employed as follows: The neutral-red soup is taken into the empty stomach and the patient is asked to urinate every 5 to 10 minutes; the urine is kept in test-tubes. An hour after ingestion of the soup the gastric contents are extracted. If the filtrate is colorless then no acid has acted upon the test-soup, as otherwise the neutral-red would be found in the filtrate. MILL.

Acute Gastric Dilatation—G. N. MAGAKJAN, *Wratschebnaja Gazeta*, 1908, No. 17.

The affection starts usually with gastric manifestations. The patient complains of nausea, vomiting, occasionally colic, sense of fullness, constipation and retention of gases. Abdomen is inflated in some portions only. The vomited masses are inodorous. There is nearly always a strong sense of thirst. The urinary excretion is diminished; occasionally there is anuria. The pulse is weak, respiration increased. The patient collapses. The temperature is generally not augmented, once in a while it is even subnormal. In some cases it is easy to recognize acute gastric dilatation, but there is always a possibility of mistaking it for peritonitis. From volvulus acute gastric dilatation may be differentiated by the condition of the vomited masses, which are always inodorous in the latter. A rational diagnosis must also consider the possibility of pancreatitis. The course of the affection is acute in most instances. The prognosis is not unfavorable when the true nature of the affection is early recognized in order that proper steps for its amelioration may be taken. Otherwise the mortality is very large. Neck, who gives the histories of 64 cases of the affection, mentions 47 deaths and but 17 cures.

ZIMMER.

How Frequently do Gastric Ulcers become Carcinomata?—W. L. RODMAN, Surg., Gyn., and Obstet., June, 1908.

Of all the remote dangers of gastric ulcer, the greatest of them (malignant disease) is scarcely appreciated at all by physicians. Cruviellier drew attention to this in 1839 and in 1840 Rokitansky stated that cancer may complicate perforating ulcer of the stomach. In 1848, Dittrich reported 8 cases in which carcinoma of the stomach had probably developed from ulcer. Brinton in 1857, reported a case in which post mortem examination proved beyond question that an ulcer had undergone carcinomatous degeneration and that the malignant disease had developed in the edges of the ulcer and had gradually invaded the base. In 1833, Zenker's pupil Hauser made the most thorough study up to that time, with the result that he considered practically all cases of gastric carcinomata as consecutive to gastric ulcer, believing that the cancerous process may be superimposed either upon an ulcer still active or upon the cicatricial remains of one. Between the years 1883 and 1890 Häberlin described 14 cases. He believed 4 were undoubtedly positive, 6 fairly so, 3 probable and 1 doubtful. Sennichsen at Kiel in 156 autopsies for carcinoma of the stomach from 1873-1891 found 22, or 14 per cent. undoubtedly developed in the scars of ulcers or in fresh ulcers themselves. Klaus following up this work in the same institute from 1891-1900, out of 120 stomach cancers found 32, or more than 26 per cent. grew from either ulcers or cicatrices. Fütterer, of Chicago, in 1892 collected 52 cases demonstrating malignant change

in ulcers originally benign. Ssapesko found in 100 gastric carcinomas only 10 that did not originate on the base of a peptic ulcer. Stich states that ulcer carcinoma constitutes 30 per cent. of the entire number of gastric cancers. French observers, notably Doyen, consider that a large percentage of gastric carcinomata have their origin in inflammatory lesions. W. J. Mayo found that in 54 per cent. of the cases of the stomach submitted to resection in 1905-06 at his clinic, clinical history and pathological examination made it certain that the cancers had their origin in ulcers. Moynihan in his last 22 cases of gastroenterostomy found that in 16, or 72.1 per cent. there had been a previous gastric ulcer. Mayo Robson in his Bradshaw lecture stated that 59.3 per cent. of the cases of the stomach upon which he had operated gave a history of chronic ulcer.

The author has within two years encountered nine patients suffering with gastric carcinomata; seven of them were at the pylorus, all giving an unmistakable history of previous ulcer. PAGE.

Late Results After Operations for Benign Diseases of the Stomach and Duodenum—B. G. A. MOYNIHAN, *Annals of Surgery*, June, 1908.

In endeavoring to arrive at a just estimate of the value of surgery in its application to the non-malignant diseases of the stomach the author has gathered the records of all the cases upon which he has operated up to the end of 1905. They are 281 in number; and may be classified into four groups: (1) Perforating ulcer of the stomach or duodenum; (2) cases for which hemorrhage has been the immediate cause of urgent interference; (3) cases of chronic ulcer, etc.; (4) cases of hour glass stomach.

A summary of the entire number of cases gives the following results:

	Total number	Recovered	Died	Since dead	Cured
Group 1	27	18	9	0	16
Group 2	27	23	4	0	19
Group 3	205	203	2	15	159
Group 4	22	19	3	1	17
	281	263	18	16	211

Of the 34 deaths, 18 were the result of the operation, of those who died since, 7 cases were carcinoma of the stomach and 9 died from causes unconnected with the disease of the stomach or the operation performed for its relief. PAGE.

Temperature Difference in Both Axillæ in Acute Epityphlitis—E. HÖNCK, *Deutsche med. Wochenschr.*, 1908, No. 35.

Author has observed cases of acute epityphlitis in which the dif-

ference of temperature in the armpits amounted to as much as 1.5 deg. C., the higher temperature being invariably obtained in the left axilla. This marked divergency may be explained by an angio-neurotic condition of the cutaneous vessels which may result from unilateral irritation of the sympatheticus. MILL.

The Neutrophile Blood-Picture in the Early Stage of Acute Appendicitis—

R. KOTHE, Berliner klin. Wochenschr., 1908, No. 36.

In acute appendicitis there ensues besides augmentation of leucocytes in the blood also a qualitative alteration of the neutrophile blood-picture as pointed out by Arneth. In all cases, which came to an examination, the number of mononuclear (young) neutrophiles, which amount normally to only 6 per cent. of the entire neutrophiles, was more or less increased. The increase was found to depend upon the severity of the infection and the pathological changes in the vermiform process and the peritoneum. MILL.

The Clinical Bearing of Cutaneous Tenderness on Various Acute Abdominal Disorders, Especially Appendicitis—

H. ROBINSON, Quarterly Jour. of Medicine, July, 1908.

The author states that in diseases of the appendix or diseases originating there, cutaneous tenderness is sometimes present: most commonly in the skin innervated from the eleventh dorsal segment of the spinal cord, but also sometimes in the territory of the ninth, tenth and twelfth dorsal and possibly of the eighth dorsal and first lumbar segments. These areas of tenderness are most frequently in three forms, but they may be irregular and atypical altogether. (1) The largest area is in the form of a continuous band, corresponding roughly to the distribution of the whole of the sensory fibres of the eleventh right dorsal segment. Beginning at the back close to the middle line, the band slopes slightly downward. As it is followed around to the front, its lower edge just skirts the crest of the ilium and it ends in the hypogastrium. (2) Another area is triangular, bounded below by Poupart's ligament, above by a line drawn out from the umbilicus and to the inner side by a vertical line just to the right of the middle line. Its apex is at the anterior superior spine of the ilium. (3) The third form is a circular patch just below the centre of the line joining the anterior superior spine of the ilium and the umbilicus. A patient displaying an area of superficial tenderness of one of these three defined varieties, is in the majority of cases suffering of appendicitis. Nevertheless renal colic, perforated duodenal ulcer, intestinal colic and peritonitis may resemble appendicitis in this respect. Cutaneous tenderness is found as frequently in subsequent as well as in first attacks of appendicitis and may persist after all other signs of the disease have disappeared. It may vary in character or disappear altogether and may supervene

in a patient in whom it was not previously present. Cases of widespread peritonitis set up by appendicitis, may display large areas of cutaneous tenderness over the right side or over the whole of the abdomen. SACHS.

Appendicitis in the Nursling—BERKHOLZ, *Monatsschr. f. Kinderheilkunde*, VII, No. 2.

A case-history of a 12 months' old nursling, who was repeatedly ill with fever, restlessness, vomiting. Stool showed no peculiarities. After four or five days the usual healthy state had again set in. The rather indistinct attacks always started suddenly. During the attacks there were increased tension of the abdominal walls on the right side and a more pronounced pressure sensitiveness on the right than on the left side. The operation after an attack of ulcerative appendicitis confirmed the diagnosis. In all febrile affections in the nursling with a vague symptom-complex the possibility of appendicitis should be thought of. ZIMMER.

Enteromucorrhea of Nervous Origin—L. CHEINISSE, *La Semaine méd.*, 1908, No. 33.

Enteromucorrhea of nervous origin is a rare affection. It may be differentiated from colica mucosa by the absence of pain. Besides the secretory disturbance there exists also a motor neurosis (spastic contraction) of the affected intestinal segment. MILL.

Method for the Demonstration of Parasite Eggs in the Feces—W. TELMANN, *Deutsche med. Wochenschr.*, 1908, No. 35.

A small quantity of the feces is well shaken with ether and chemically pure hydrochloric acid (1:1) until dissolved. The solution is then centrifugated. The tube contains three distinct strata (according to the weight), uppermost the fats which are dissolved in the ether, in the middle the acid-solution with disintegrated bacteria and fecal masses, while insoluble residual matter as cellulose and muscle fibres, and the parasite eggs are found in the lowest stratum. MILL.

Character of the Stools, with Reference to the Intestinal Findings in the Diarrheal Affections of Infants—J. H. M. KNOX, *Jour. A. M. A.*, Oct. 17, 1908.

The absence of mucus from the diarrheal discharges of infants renders the presence of serious intestinal lesion improbable. Extensive changes may ensue in the wall of the intestine without macroscopic amounts of blood in the discharges. The failure to recognize pus in the discharges with the naked eye does not preclude the possibility of extensive intestinal lesion. Blood and pus occur in the stools more frequently from the third to the sixth or eighth

week of the diarrheal affection than in the first weeks. Blood and pus are frequently found mingled in the same stool. Blood does not often appear alone, but pus alone is still less frequently observed in the discharges of infants. The occurrence of these substances points to probable thickening and infiltration or of ulceration of the mucosa especially of the large bowel.

WESTERN.

Demonstration of Colonic Stenosis by the Röntgen Rays—E. SCHENCK, *Fortschr. d. Röntgenstrahlen*, 1908, No. 5.

While the bismuth meal gave no results, a stenosis of the colon, produced by a tumor, was detected by the X-rays after introduction into the colon through the rectum of a suspension of bismuth subnitrate 50 grams and bolus alba 150 grams.

MILL.

A Consideration of the Compensatory Diarrheas—HEINRICH STERN, *Jour. A. M. A.*, Aug. 8, 1908.

The author defines compensatory diarrhea as a phenomenon of varying degree and duration, apt to ensue and to return with more or less frequency in the course of systemic deterioration, and characterized by the diarrheal discharge of incompletely or perversely catabolized substances, or by that of catabolic products normally excreted by other emunctories. This definition excludes, therefore, all the diarrheal eliminations of food residues and the elements elaborated from the ingesta which have not been absorbed, and includes the diarrheal excretion of normal and abnormal products of retrograde tissue metamorphosis. The evacuations in compensatory diarrhea, of course, consist, in addition to the catabolic material, of the accidental contents of the bowels. While by its nature a compensatory diarrhea is primarily always a functional occurrence, the catabolic substances excreted by it may give rise to intestinal lesions which in turn may prolong or intensify the diarrhea, or may occasion more or less severe attacks of watery evacuations of non-compensatory character. Thus, we frequently encounter in the intestines an apparent anatomic substratum of a compensatory diarrhea which, however, is but the immediate result of the perverse elimination of a number of excrementitious substances, and therefore not the cause but the consequence of the assumption of intestinal compensatory activity. The author recognizes three general types of compensatory diarrheas, viz: First, diarrheas which are concomitant with deficient or perverse catabolic processes. Second, diarrheas which are the consequence of functional or structural disease of certain excretory organs. Third, diarrheas occurring during the period of physiologic systemic decline. This general prognostic axiom concerning the compensatory diarrheas may be put forth. So long as a diarrheal process continues to compensate efficiently for loss of function of the skin, lungs, kidneys, and the organs of internal secre-

tion, or, in other words, so long as most of the effete and injurious material is removed from the organism by the medium of the bowels, the patient is in a satisfactory osmotic equilibrium and there is little immediate danger so far as life itself is concerned. On the other hand, the pathologic or artificial suppression of the diarrheal discharges may give occasion to grave symptoms and even cause death, in case the functionally deficient organs have not regained their activity meanwhile. A true compensatory diarrhea should not be interfered with unless there is sufficient evidence that the localized intestinal irritation and hyperemia unduly prolong the increased peristalsis. Inasmuch as a compensatory diarrhea is symptomatic of the insufficiency of excretory function in general, it indicates the points toward which treatment should be directed. Such treatment should tend to the stimulation of the catabolic processes and the regeneration of the eliminative qualities of the skin, lungs and kidneys.

WESTERN.

Chronic Pancreatitis—J. B. DEEVER, Jour A. M. A., Aug. 1, 1908.

The symptoms of pancreatitis are caused in three ways, and may thus be divided into three groups: (1) Those depending on the local lesion, *i.e.*, the local manifestations of disease in the upper abdomen. (2) Those coming as a result of the interference with pancreatic secretion, *i.e.*, a form of indigestion. (3) Those depending on interference with the internal secretion of the pancreas—shown principally in the occurrence of diabetes and in the pancreatic reaction in the urine. The local symptoms are quite unimportant. The patient may at times complain of some epigastric pain, occasionally localized somewhat to either side of the median line. Tenderness may also be present in this locality. The presence of a tumor has been described by some, but the author has never been able to satisfy himself of the presence of this sign in chronic pancreatitis. Jaundice is a symptom often depending on local mechanical interference. It may even occur when the pancreatitis is not associated with gall-stone disease. At times the damming back of the bile will give rise to distention of the gall bladder, which organ may even become palpable. In these instances the symptom is more apt to confuse than to help us, as it would lead us to believe the condition to be primarily biliary. The digestive symptoms due to interference with the pancreatic secretion are of the utmost importance. The patients often have anorexia, fulness in the epigastrium and eructations of gas. Associated with these we often have diarrhea of an intermittent or continuous form, in which the stools are large and often grayish in color and contain an excess of free fat. This combination of such an indigestion with the local signs of a lesion in the upper abdomen should lead us to suspect a pancreatic condition

vous system. Abolition of the knee-jerks, followed by their exaggeration, coupled with ankle-clonus, and supported by the extensor type of plantar reflex form a combination which distinguishes genuine epilepsy from either hysteria or malingering. Though a patient suffering from paralysis entirely recovers, it cannot be said that this was hysterical if the paralysis was accompanied by the extensor type of plantar reflex, since recently it has been shown that in certain types of disseminated sclerosis there is a time in the course of the malady when the lesion is of a kind that permits not only of the restitution of function but also of repair of structure. In the diagnosis of one organic disease from another the reflexes are of great value. Exaggeration of the knee-jerk, exaggeration of the ankle-jerk and the extensor plantar reflex distinguish disseminated sclerosis from *tabes dorsalis*, in which disease they are absent. The presence of the aforementioned three reflexes in a case of atrophy of the small muscles of the hand indicate this atrophy to be due to a spinal-cord lesion: namely, amyotrophic laterosclerosis. In cases of disseminated sclerosis and cerebellar tumor difficult of diagnosis, the extensor type of plantar reflex is greatly in favor of the former disease, and although it may be present in the late stages of complicated cerebellar tumor, the absence of the superficial reflexes of the abdominal wall immediately indicate disseminated sclerosis. By changes in the reflexes we are able to localize the seat of the lesion. The abolition of the reflexes which corresponds to certain segments of the cord, the escape of all the reflexes above this level and exaggeration or other modifications below it determines the position of a focal lesion in the cord. In localizing lesions of the frontal lobe, unilateral exaggeration of the knee-jerk or the appearance of unilateral ankle-clonus is of especial value. In tumors of the pons and cerebellum the time of their alteration is of decided significance. When these reflexes appear early in the course of the disease, it speaks in favor of a pons tumor, while their late appearance indicates cerebellar tumor. The knee-jerk in these cases is not of assistance, but alterations of the other reflexes aid us materially. In estimating the extent and severity of the lesions, we must remember that a very limited lesion may give rise to marked alteration in reflexes, and vice versa. The severity of transverse lesions of the spinal cord is well shown when the reflexes are abolished and do not return.

SACHS.

A New Sign for the Detection of Malingering and Functional Paresis of the Lower Extremities—C. F. HOOVER, *Jour. A. M. A.*, Aug. 29, 1908.

If a normal person, lying on a couch in the dorsal position, be asked to lift the right foot off the couch with the leg extended, the left heel will be observed to dig into the couch as the right leg and

thigh are elevated. If you place your hand under the tendo Achillis of the left side and sense the muscular resistance offered by the left leg, you will observe that the left heel is pressed on to the couch with the same force which is exhibited in lifting the right leg off the couch. In other words, the left heel is employed to fix a point of opposition against the couch during the effort at lifting the right leg. This will always occur if the healthy person makes a free and uninhibited effort to lift the right leg. Of course the opposition offered by the other leg is not essential to a successful elevation of one leg, but if a free effort of the will is made (no matter how slight the effort) the point of opposition made with the leg of the other side is invariably present unless some inhibitory impulse be sent to the opposing leg. If the movements are carried out in the reverse order the same principle holds true, *i.e.*, if a normal person be requested to press the right leg against the surface of the couch there will be a counter-lifting force exhibited in the left leg. If a patient suffering from hemiplegia or monoplegia of a leg be requested to lift the extended and paretic leg off the couch it will be observed that the other leg offers the opposition above described whether there is any voluntary muscular strength exhibited or not on the affected side. If the hemiparetic patient is asked to lift the normal leg off the couch against resistance he will exhibit an opposition with the paretic leg which is directly proportional to the voluntary muscular strength he is able to employ when a display of voluntary muscular power in the paretic leg is exacted. WESTERN.

Contribution to the Diseases of the Conus Medullaris—S. S. RABINOWITSCH, *Berliner Klin. Wochenschr.*, 1908, No. 35.

A man, 35 years old, exhibited after a cold the following symptoms: Anesthesia of urethra and rectum; loss of innervation of bladder and rectum (involuntary discharge of urine and feces); sexual impotence; anesthesia of genitals, perineum, ano-coccygeal and neighboring regions. Finally loss of right tendon Achilles reflex.

MILL.

Myasthenia Gravis Pseudoparalytica—G. MARINESCO, *La Semaine méd.*, 1908, No. 36.

Myasthenia is clinically characterized by fatigue and exhaustion of the patient when making voluntary movements. The muscles especially involved are those which are supplied by the following nerves, *viz.*, trigeminus, facial, glossopharyngeal, vagus and hypoglossus. Of chemical importance is the insufficiency of the oxydation processes, which results in the occurrence of intermediary products of metabolism, disturbance of the chemical constitution of the muscle and augmentation of the urinary N. excretion. MILL.

Acute Multiple Sclerosis—H. KOCH, Wiener klin. Rundschau, 1908, Nos. 34 and 35.

A case-history interesting on account of its clinical symptom-complex, which was that of myelitis while the necropsy demonstrated with certainty acute multiple sclerosis. MILL.

Acute Ascending Lethal Paralysis after Antirabietic Treatment—V. BABESCH and T. MIRONESCU, România méd., 1908, Nos. 6 and 7.

As a consequence of antirabietic treatment myelitis of lethal termination may ensue. The affection is considered a rabies infection which has been attenuated by the treatment. A close investigation of the pertaining instances shows, however, that it is not rabies but probably an intoxication due to the antirabietic toxin, the appearance of which has been made possible by a peculiar predisposition of the organism, to which very likely the myelitic symptoms and the death of the individual have to be ascribed. To confirm their opinion the authors report the following case of a woman, 40 years old, who was bitten by a mad dog. On the fifteenth day of the antirabietic treatment there occurred paralyzes of the lower extremities which rapidly progressed upward and were followed by death within a short time. The necropsy showed edema of the meninges and the brain and especially extended degeneration and liquidity of the entire lumbar and lower dorsal spinal marrow. Besides, there were nephritic manifestations. Vaccinations with portions of the spinal marrow did not produce any disturbance of health in rabbits. ZIMMER.

Volkmann's Ischemic Paralysis—A. S. TAYLOR, Annals of Surgery, Sept., 1908.

Ischemic paralysis first described by Volkmann in 1880-81, is a comparatively rare lesion if one is to judge by the small number of cases in the literature. In 1904 Schramm could collect only 27 cases. In 1907 Powers collected 52 cases, to which the writer adds 6 cases from recent literature and one personal case. In all but two of the 59 cases the forearm was involved (flexor muscles). The other two occurred in the flexors of the leg and foot. The great majority of cases occurred in children from three to twelve years old. The underlying cause in all these cases is ischemia, which may be induced by direct compression of the vessels and muscles or by contusion, laceration, thrombosis or embolism of the vessels. These factors may be more or less combined. At least 80 per cent. of the cases reported followed fractures where the splints or plaster bandages have been too firmly applied. Complete ischemia persisting for more than six hours is almost sure to be followed by serious contracture. When after the application of firm dressings to a frac-

tured extremity, there appear rapidly and simultaneously, pain, swelling, discoloration, flexion-contraction of fingers and wrist, with loss of power to extend them either actively or passively, ischemic paralysis is present. Paralysis due to nerve injury is very different. Here the muscles are flaccid, and permit passive motion through the full range and contracture, when it does occur, is late in appearing and slow in development. The characteristic features then of ischemic paralysis are the rapid and simultaneous onset of loss of function, flexor-contraction, and rigid resistance to passive extension.

PAGE.

Contribution to Juvenile Ataxia—W. PESCA, Wiener med. Wochenschr., 1908, No. 34.

In a five-year-old girl, free from hereditary taint, author observed after an attack of initial vomiting, which ceased after some time, tremor of the extremities, and soon afterward ataxia and nystagmus and exaggeration of the patellar reflexes. The ataxia affected all the four extremities, but was ameliorated to the extent that nothing remained but a vacillating and unsteady gait. There were no other changes in the nerves and muscles. Author thinks the case was one of encephalomyelitis disseminata, an affection which may be the beginning of a multiple sclerosis.

MILL.

Gastric Crises of the Tabetic—P. A. OSTANKOW, Praktitscheski Wratsch, 1908, No. 16.

Gastric crises are occasionally the result of the cumulative action of morphin in the organism and have to be looked upon as a reaction on the part of the organism to the chronic morphin poisoning. This fact has been known for some time and it has a distinct bearing upon the production of the gastric crises in tabetics. Von Leyden in his book on tabes has already stated that intensity and tendency to recurrence of gastric crises may be increased when the individual is under the influence of morphin. Withdrawing of this drug has even brought about considerable improvement of patients who had been subject to violent gastric crises. The patient who was under the observation of the author was affected with ataxia and lancinating pains which were not in the least improved by any of the methods employed. There had been no gastric crises before morphin was resorted to. In the course of time the patient became more and more accustomed to the morphin. After two years of continuous morphin administration the patient had no pain-free intervals any more. Soon attacks of vomiting and gastric crises increasing in frequency, supervened. Withdrawal of the morphin with the patient's consent called forth a decided diminution in the frequency of the gastric crises. While these ensued during the morphin period every 12 to 15 days, they occurred as rarely as once in

several months when the patient was no longer under the influence of morphin. Finally, when the influence of the cumulative action of the morphin had entirely ceased, and when no morphin at all was administered, the gastric crises disappeared entirely. ZIMMER.

Mental Disturbances in Cerebral Syphilis—BIRNBAUM, *Allgemeine Zeitschr. f. Psychiatrie*, 1908, No. 4.

Description of five cases of positive syphilitic infection causing arteriosclerosis and, at a rather early age (between the thirty-fifth and forty-first year of life), dementia. MILL.

Prognosis of Dementia Precox—E. ZABLOKA, *Allgemeine Zeitschr. f. Psychiatrie*, 1908, No. 4.

A review of 500 cases of dementia precox from the statistics of the asylum Burghölzli near Zürich. About 60 per cent. of all cases after the first attack are slightly, and 22 per cent. decidedly demented. The catatonic form offers the least favorable prognosis. Cases with acute onset may return after the first attack to the status quo ante. On the other hand, cases with slow onset, and those arising in individuals with abnormal mental characteristics, terminate unfavorably. Bodily condition, age, lues, etc., are of little moment for the prognosis. MILL.

URINARY ORGANS—MALE GENITALIA

A Simple Method of Urine Segregation—P. MÜLLER, *Folia urologica*, 1908, No. 7.

The urine of one kidney may be obtained separately when the ureter of the other kidney is compressed through the abdominal wall exactly on the spot where it lies in proximity to the psoas muscle, laterally from the last lumbar vertebra. The method is executed by placing the patient in the horizontal position with slightly elevated pelvis, and by forceful and uniform pressure upon the designated spot by means of a tightly rolled elastic bandage or an elastic piece of rubber to which is attached a handle. The compression should be continued for from 20 to 30 minutes, and should be performed in perpendicular direction. The bladder must be previously thoroughly irrigated, and it is best to continue the irrigation until the compression is well under way. The bowels should be emptied before the procedure is performed. Anesthesia is as a rule not necessary. WESTERN.

Phloridzin Test and Diagnosis of Renal Function—BLUM and PRIGL, *Wiener klin. Wochenschr.*, 1908, No. 22.

The excretion of sugar after the injection of phloridzin is no

absolute proof of the physiological functional activity of a kidney. The appearance of sugar 15 minutes after the injection of phloridzin, which is supposed to be the normal period after which the glycosuria should ensue, is no indication for the anatomical or functional soundness of the kidneys. Again, retardation of the glycosuria is also not a positive symptom of an anatomical or functional lesion of the renal organs. While the "time method" is of little value, the comparative quantitative method as advocated by Casper and Richter is quite useful. The diseased kidney excretes as a rule absolutely and relatively less sugar than the sound one. However, this method becomes only of practical value when the results obtained by it are confirmed by the chemical and microscopical findings of the synchronously obtained secretions of both kidneys. WESTERN.

Diagnosis of Urinary Tuberculosis in Children—C. A. LEEDHAM GREEN,
British Jour. Children's Diseases, Sept., 1908.

Urinary tuberculosis in children is exceedingly common and, when recognized early and the primary focus removed, of distinctly good prognosis. Recent investigations show that tuberculosis affecting the urinary tract almost invariably begins in one of the kidneys from whence it spreads to the bladder. The task of diagnosis in a suspected case of urinary tuberculosis is twofold. (1) The definite proof that the disease is tubercular, and (2), the detection of the primary focus of the trouble and the extent to which the disease has spread. Kapsammer examined the post-mortem records for ten years of the Vienna General Hospital and found that of 191 cases of tuberculosis of the kidneys, only 2 had been rightly diagnosed during life, 4 wrongly so, and 185 not diagnosed at all. It is important that attention should be given to the slightest disturbance, be it discomfort or undue frequency of urination. The routine examination of the urine should include a bacteriological examination. The systematic examination of the urine of all patients affected with albuminuria, irrespective of the presence of blood or pus, will reveal the presence of tubercle bacilli in 80 per cent. of the cases.

If in spite of repeated examinations no tubercle bacilli are found in the urine, resort should be taken to intraperitoneal injections of the urine into guinea pigs; to the estimation of the opsonic index of the blood, and to the conjunctival or cutaneous tuberculin reaction. Having found tubercle bacilli in the urine, or being otherwise satisfied that the suspicion of tuberculosis of the urinary organs is justified, the next step to be taken is the possible detection of the primary focus and the determination of the extent of the disease. It must now be determined (1) whether the bladder is involved and if so, to what extent, and (2) what is the condition of each kidney? The state of the ureters should also be determined. In tuberculosis

of the kidney the children usually complain of pain on pressure over the course of the ureter, especially at the hilum of the kidney and at the ureter's entrance into the bladder. If the ureter is tubercular, it is felt as a cord-like structure by a finger inserted into the rectum or vagina. The cystoscope offers the best method of examination and in children an instrument 14 or 15 French scale may be used. In advanced cases when the bladder is infected, ulcers may be seen on its wall. In the early stages, the bladder may be quite free, but the opening of the ureters shows hyperemia, edema, gaping or retraction. A valuable adjunct to the simple cystoscopic examination is the so-called chromo-cystoscopy, which consists in the observation (by means of a cystoscope) of the excretion through the ureters of a pigment injected subcutaneously. If there be any mechanical or functional interference with the excretion of the urine, then the coloring matter will not appear readily in the urine, or it will be diminished in amount, or be absent altogether. SACHS.

Granular Kidney—W. B. WARRINGTON, *The Lancet*, Aug. 22, 1908.

There are four cardinal symptoms on which must be based the diagnosis of granular kidney: (1) cardiovascular changes, (2) eye changes, (3) manifestations of chronic or acute renal toxemia, (4) the condition of the urine. The examination of the eye may permit a definite diagnosis of a puzzling case of the affection. The chronic states of toxemia may lead to errors in diagnosis. WESTERN.

Stone, Tuberculosis of the Kidney and Perinephric Abscess—G. T. VAUGHAN, *Annals of Surgery*, June, 1908.

The symptoms of stone in the kidney are due to infection or the mechanical action of the stone, the most reliable being pain; the pain, aggravated by motion, is felt in the lumbar region and may extend along the ureter to the bladder, penis, testicle, thigh, foot, or may be referred to the sound kidney. Palpation or percussion over the kidney may cause pain. Renal colic may end by the stone passing into the bladder, dropping back into the kidney or becoming impacted in the ureter—the point of impaction being indicated at times by pain and tenderness. Blood, pus or gravel may appear in the urine and oliguria or suppression of urine may occur. The cystoscope and Röntgen ray are of great value in making the diagnosis. Phloridzin and cryoscopy may be used to test the functional activity of the kidneys. Tuberculosis of the kidney is in the majority of cases secondary to tuberculous foci in other parts of the body; it is primary in about 15 per cent. of cases, is often unilateral and is usually of hematogenous origin. Rarely it is secondary to tuberculosis of the bladder. Trauma, stone, gonorrhea and other inflammations predispose to it. The disease is more common in women between the ages of 20 to 45 and the ureter is affected in 10

to 15 per cent. of the cases. Polyuria in the earliest stage, then blood and pus are found in the urine; the former usually in small quantity and intermittent; the latter usually early, constant and abundant. Painful and frequent micturition with tenesmus, varying in degree and frequency; vesical ulcers may be seen by the cystoscope. There are usually pain and tenderness in the kidney and enlargement on palpation. The principal general symptoms are chills, fever, sweats, emaciation, vomiting and uremia. Perinephric abscess is the result of the infection of the tissues immediately surrounding the kidney and is generally secondary to infection of the kidney or some more distant organ, as the appendix, gall-bladder, lung, pleura, intestines or bones. The symptoms are often obscured by those of the primary disease, but the most common are pain, tenderness, chill, fever, sweats and a palpable mass in the region of the kidney. The pus may break into other organs or may point externally in Petit's triangle.

PAGE.

Sub-Temporal Decompression in a Case of Chronic Nephritis with Uremia; with Especial Consideration of the Neuroretinal Lesion—
H. CUSHING and J. BORDLEY Jr., *Am. Jour. Med. Sciences*, Oct., 1908.

An extended review of a case of chronic nephritis with uremia in which a sub-temporal decompressive operation was made, with marked transient relief of the cerebral symptoms and neuroretinal changes. The case ultimately having a fatal termination the complete autopsy and pathological reports make it of unusual value. The trend of the author's comments seems to lean strongly to the theory of edema of the brain (Traube's hypothesis) as being a potent etiological factor in the neuroretinal changes, as well as the convulsions, coma and other symptoms. The intercurrent cerebral hemorrhage was, as the authors state, probably masked by the previous operation relieving the tension symptoms, which would otherwise have been more marked.

PAGE.

**FEMALE ORGANS OF GENERATION—PREGNANCY—
PARTURITION—INFANTS**

Genital Tuberculosis—A. MARTIN, *Jour. A. M. A.*, Sept. 19, 1908.

As to the prognosis of the especially diseased parts of the genital organs, our means of attack are not yet powerful enough to allow us to give the prognosis as absolutely favorable. In any case we are not ensured against the outcropping of tuberculosis in any other part, in the organs of respiration and digestion, bones, joints, skin and elsewhere.

WESTERN.

Perforative Appendicitis Complicating Pregnancy—E. A. BABLER, Jour. A. M. A., Oct. 17, 1908.

Careful study of the previous history and of the mode of onset of the present attack, combined with a thorough examination, will usually eliminate error. Ureteritis and pyelitis should be borne in mind in the differential diagnosis. In pyelitis the lumbar pain, frequent micturition, pus in the urine, the daily chill followed by high temperature, the marked tenderness in the region of the kidney and along the course of the ureter, and the absence of rigidity of the right rectus and point tenderness suffice to guide correctly. When the symptoms of appendicitis appear during the puerperium, difficulty in reaching a correct diagnosis may be met. In septicemia a chill seldom appears before the third day after delivery, while in perforative appendicitis or in ruptured appendical abscess the patient may experience a chill on the day of the delivery or the following day. The character of the lochia, the previous history, the mode of onset, the muscular rigidity and the findings in general will suffice to guide to the appendix. PAGE.

Clinical and Bacteriological Studies of Puerperal Fever—F. FROME, Archiv f. Gynäkologie, 1908, No. 33.

Investigations concerning the connection of the streptococcus with puerperal fever, especially the hemolysis of the streptococcus in the various forms of the affection and in the healthy woman. A good prognosis can be given in puerperal fever when the secretion of the uterus contains all types of saprophytes and the blood is sterile. The prognosis becomes doubtful if the streptococci predominate or if they are hemolytic. The prognosis is very grave when the streptococci appear in the blood in large numbers and have been repeatedly demonstrated therein. MILL.

Bibliography

A MANUAL OF CLINICAL DIAGNOSIS. By JAMES CAMPBELL TODD, M.D., Associate Professor of Pathology, Denver and Gross College of Medicine (University of Denver); Pathologist and Clinical Microscopist to Mercy, St. Anthony's, and the Denver City and County Hospitals. Philadelphia and London: W. B. Saunders Company, 1908.

The excellent way in which the subject-matter in this little book is dealt with, must serve as a justification for its publication, since it contains nothing that is new. The book of 319 pages is called a manual, but, in reality, it is a guide for work in the clinical laboratory.

Nearly all the illustrations, of which there are 131 in the text and 10 colored plates, are old friends and have done duty on other occasions. It certainly would not be considered amiss if the figures in some of the illustrations would be shifted around, so as to make their immediate identification by a cursory glance a somewhat more difficult matter. Moreover, many of the drawings are accredited to authors on whose soil they have not primarily sprouted, and thus the matter of illustrations becomes a case of "the hand that shook the hand of John L. Sullivan."

In spite of the entire absence of originality, the conciseness, succinctness and handiness of this little compendium, commends it alike to student and practitioner.

H. S.

THE OPERATIONS OF SURGERY. By JACOBSON and ROWLANDS. Vol. I. Upper Extremity, Head, Neck and Thorax. Vol. II. Abdomen, Lower Extremity and Spine. Philadelphia: P. Blakiston's Son & Co., 1908.

The appearance of the fifth edition of this work, especially since it is now brought up to date, thoroughly accords with the surgical practice in this country and unstintedly recognizes the work done by American surgeons, will be heartily welcomed by many a practitioner who is oft-times called upon to resort to the knife.

For twenty years this work has been friend, councillor and guide to many of us. I do not know of any other work in this or another language that is so thorough and complete an exposé of the science and art of operative surgery. It is a book so lucid, so complete in every detail and so well balanced that it enables any one possessing the slightest surgical instinct to master the details of an operation and proceed to operate.

This work can be warmly commended not only to the interne and surgeon with hospital facilities at hand, but also to the man lacking these advantages, and who when forced by emergency to

operate, is left entirely dependent upon his own resources. To the latter it will prove an invaluable boon, and become a trustworthy friend.

K. B. P.

DISEASES OF THE BREAST. *With Special Reference to Cancer.* By WILLIAM L. RODMAN, M.D., LL.D. 69 Plates, 12 of which are in Colors, and 42 other Illustrations. Philadelphia: F. Blakiston's Son & Co., 1906.

A fair and just critic of this book involves its consideration from two points of view. If addressed to the profession at large it is a complete and intelligent presentation of the literature on the subject; viewed, however, from the standpoint of the professional surgeon, it offers so little that is not found in the older works that the publication of this book seems entirely superfluous. K. B. P.

THE ARCHIVES OF DIAGNOSIS

A QUARTERLY JOURNAL DEVOTED TO THE STUDY
AND THE PROGRESS OF DIAGNOSIS AND PROGNOSIS

Vol. I

OCTOBER, 1908

No. 4

EDITED BY
HEINRICH STERN
New York



PUBLISHED BY
THE ARCHIVES OF DIAGNOSIS
250 WEST 78^D STREET
NEW YORK

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Entered as Second-Class Matter, February 8, 1908, at the Post-Office at New York, N. Y.
Under the Act of Congress of March 3, 1879.

SUBSCRIPTION ONE DOLLAR A YEAR. SINGLE COPIES 50 CENTS. FOREIGN \$1.50.

